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MEASURES TAKEN BY THE CANADIAN GOVERNMENT TO PREVENT THE INTRODUCTION AND SPREAD OF CHOLERA IN CANADA

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Before detailing these measures, it may be of interest to cite the case of a cholera carrier we had at one of the quarantines of Canada last winter.

A case of Asiatic cholera presented itself on November 17th, 1910, at the Grosse Isle Quarantine Station, in the River St. Lawrence, Canada. It was the first case of this disease since its coming to that quarantine in the year of the Hamburg cholera epidemic, 1893.

Upon receipt of telegraphic information of the arrival of this case, I went to the station and took charge of the situation.

I found the vessel, the "Royal George," at the station, the patient landed, but any further action suspended on account of the gale that was raging. I learned that although during the voyage the foreign immigrants had been separated from the others, this had not been maintained until the end, but that they had been redistributed according to destination. On account of this mixing, and the occupation by the different classes of the forward and aft steerages alike, I deemed it necessary to land all the steerage passengers, 260 in number, and to disinfect both the forward and aft steerages.

The ship's hospital was disinfected by steam, the alleyways, latrines, etc., with mercuric chloride solution, and the steerages fumigated with sulphur dioxide. The vessel was then released. The landed passengers were held five days after disinfection. No subsequent case occurred; this proves the efficacy of the measures taken, the disease being confined to and stamped out at the quarantine station, as was done when it last appeared in 1893.

The history of the patient, as given me by himself, as far as the facts prior to his arrival are concerned, is as follows:—

Poulick (or Godlieb) Seide, aged thirty, left his home in the village of Michelsdorf, in the district of Vlodawski, in the province of Szedista, in Russia, on Tuesday, October 18th, 1910. He persistently asserted that there was no cholera whatever or anything resembling it in the country at or near his home in the village above named. He drove by team from his home to the town of Wlodawa, thence went by rail, two days' journey, to Libau. He had with him, in a basket, bread, sugar, tea, and boiled meat. He bought fruit at stations on the way to Libau. At Vrifzcz he bought four apples; ate them, and drank some beer. He had only the basket with the provisions referred to; and three shirts, bought about a fortnight before in the village store of Israel, at Michelsdorf; besides one "towel" or handkerchief.

In Libau he spent one day and one night at an emigrant boarding house, to which he was conducted by the agent of the steamship line. In this house there were also at the time some thirty more people, Russians, Jews, and others. He was examined by a doctor, and passed; his eyes having been looked at, and the skin of his forearm. His clothing and basket were not disinfected.

From Libau to London he was on a small Danish steamer for eight days, without any stops.

In London he was met and taken by team to emigrant boarding quarters, where there were many nationalities. He was there eight days. From there he went by bus to the depot. He was on train for two hours to Bristol, where he directly boarded the steamer "Royal George."

He was quite well during the first three days of the voyage, except for a little seasickness. On the fourth day, which was stormy, he vomited, and was very thirsty. During the first three days he had one stool a day. On the fourth day he had no appetite, and no stool. On the fifth day he had no vomiting, but drank continually, and had one or two stools. The sixth day—the third of sickness—was the same; no appetite, great thirst, no vomiting, two loose stools; no cramps in stomach, but pains in arms and legs which lasted till he reached Quebec. He vomited only once during the voyage, and that was, as stated, on the fourth day. He had diarrhœa until he arrived at Quebec. He had no retention of urine. He had

two chills at the beginning; ate almost nothing but some of his own bread On the Danish steamer and in London he seems to have eaten the food prepared for him, but when he was ill on the "Royal George" he seems to have eaten and finished the bread which he brought with him in his basket. He had a friend, Gustav Yanke, from his own neighbourhood, who also had some provisions with him.

On arrival at Quebec at 9 a. m., on Thursday, November 17th, Seide's temperature was 102.9. At 2 p. m. it was 103.1. These temperatures were taken by Dr. Bailey, the United States immigration officer, before the ship was sent back from Quebec. The temperature of the patient when he was landed late that evening at quarantine was 101.2. On Friday, the 18th, his morning temperature was 101; his evening temperature 102.2. He had one stool. On Saturday, the 19th, his morning temperature was 101.4; his evening temperature, 101. Two stools. On Sunday, the 20th, his morning temperature was 99.3. One solid stool. The observations that occur to one in connection with this case are as follows:—

In the first place, we have the assertion of Seide that there was no cholera or anything resembling it at or near the place from whence he came; though he knew of its existence in distant provinces. None of his acquaintances or friends or anybody in his neighbourhood or in the districts through which he passed had anything to resemble the complaint which afterwards attacked him.

The period of incubation for Asiatic cholera as agreed upon by the International Health Conferences of Vienna and of Paris, and universally accepted by all sanitarians, is five days; yet here we have a man two days from his home to the port; at least a day there; eight days from Libau to London; eight days in London, and three days well on the ship; making a total of some twenty-one or twenty-two days between his departure from his home and the appearance of choleraic symptoms.

Suspicion is thus thrown upon the food that he was bringing with him; and the rush or grass basket, in which were his shirts and towel, and a few crumbled remains of bread, was sent to Dr. J. G. Adami, Professor of the Department of Pathology and Bacteriology, of McGill University, Montreal, to endeavour to establish whether they had been the cause of the mischief. It will have been noted that in Seide's report to me of his proceedings, he stated that he did not use his own provisions on the Danish steamer, and that he did eat the bread which he had brought with him in his basket, when his appetite failed at the beginning of his sickness on the "Royal George." It may therefore well be that in the transition from the cooking on the Danish steamer, which would more or less approximate to his own, to that of the boarding house in London, he may have found the English cooking less to his taste, and been therefore driven to the consumption of the food that he had brought with him. If

that was contaminated, it would account for the late appearance of the attack. The only other explanation is that Seide was a "cholera carrier."

The case was a mild one, Seide never having reported himself to the ship's surgeon, and he remained up and about all the time, and walked ashore at Quebec with the other passengers.

The clinical picture of the patient Seide on and after arrival was as follows:—

Anxious expression, with pinched nose and cheeks, and lips blue. Temperature at 7.30 a.m. 103 F. Weak, thready pulse of 138, and complained of abdominal cramps and intense thirst. He said he had been unable during the five preceding days to retain any food in his stomach except a few bits of bread that he and his traveling companion had brought with them from their village in Russia, and at times had no control over bowels' movement. At no time during the whole voyage had he eaten any uncooked meat, vegetables or fruit, except the four apples purchased and eaten unpeeled between Wlodenski and Libau.

At two o'clock he had a first stool since seven in the morning, which was collected in a sterile vessel, from which specimens were sent to Dr. Adami at Montreal, and to the Hygienic Laboratory in Washington.

Some hot milk and Vichy water was fed to the patient during the day, which was retained.

When the ship left at 7.30 p.m., the temperature had gone down one degree.

When the patient arrived at the quarantine station, Grosse Isle, I examined him very carefully, and the following is what I noted:—

18th. General appearance not very good. Pinched nose and cheeks and lips blue. Good and strong pulse of 100. Gurgle in the right Iliac fossa. No spots on the body. Skin rather subject to transpiration. Tongue moist, trembling, and covered with a thick white coat, except the borders and point, which are red. Temperature, 102 2-5 F. Had one liquid motion during the night. Night temperature, 102 1-2.

19th. Seems much better, and asks to get up. Has a good and strong pulse of 90. Morning temperature 101 2-5; night one, 101 1-5. Had two liquid motions today. All the stools collected till now have the appearance of pea soup.

20th. Seems better, but complains of headache, sore throat, and pains in the shoulders. Good and strong pulse of 80. Morning temperature of 99 2-5; night one, 99 1-5. At night complains of severe pains in the shoulders and bladder. Had a very abundant transpiration of a very strong acid smell, after which all pains disappeared. Had his first solid motion today.

21st. Morning temperature, 98 1-5; night one, 99.0. No complaint of any kind except being very hungry. One solid motion.

22nd. Morning and night temperature normal. Was very hungry. One solid stool.

From that time the temperature continued to be normal and stools to be solid. On the 23rd we allowed him to get up. On the 24th he had some solid food for the first time.

As indicated, specimens of Seide's excretions were sent to Dr. Adami at Montreal for bacteriological examination. Dr. Adami, after detailing the steps and processes of his examination, gave the following as his conclusions:—

From the various characteristics, namely:—

I. The presence of abundant "spirilla" in the preparations made from the centrifugalized sediment;

II. The free growth of a curved, or "comma" bacillus or spirillum in Dunham's medium in eight hours, this form being present to the exclusion of others;

III. The identity of this form so growing with individuals of a known and tested strain of the cholera spirillum grown similarly and for a like period in Dunham's medium;

IV. The motility of the organism thus isolated;

V. The presence of a single flagellum at one pole;

VI. The milky semi-translucent colonies developing on the surface of peptone agar medium in 10–12 hours,—from these various characteristics, I am forced to the conclusion that the material forwarded contained the spirillum of cholera, i. e., the spirillum choleræ asiaticæ, and that the individual from whom this material or these dejecta were obtained was suffering from true or Asiatic cholera.

At the same time, a specimen of Seide's excretions was sent to the United States Hygienic Laboratory at Washington by Dr. Bailey, the United States medical inspector of immigrants at Quebec. A subsequent letter to him states: "I have to inform you that a negative report was made regarding this material by the Director of the Hygienic Laboratory, the statement being made that the material was too old for a proper test for the vibrios of cholera, five days having elapsed between the time of shipment and arrival at the laboratory."

The examination of the basket and its contents, which constituted all Seide's luggage, by Professor Adami, proved negative in its results, except in the case of the handkerchief or towel, which may very possibly have been infected during his recent attack or exacerbation.

Specimens of Seide's excretions were sent subsequently from time to time to Dr. Vallée, Bacteriologist at the Hotel Dieu Hospital and at the Municipal Laboratory, Quebec, who confirmed Professor Adami's conclusions, and who continued to find the cholera spirillum in Seide's excretions up to more than four months after his choleraic attack.

The fact was thus very clearly established that he was a so-called "cholera carrier." Owing probably to the quick death or recovery of cholera patients in epidemic times, no extensive researches have been made as to the continuance or persistence of the cholera spirillum in the excretions of convalescents from this disease. In the Hamburg cholera epidemic of 1892–93, Dunbar, however, discovered a typical cholera spirillum in the stools of twenty-eight apparently healthy individuals who had never shown signs of the acute disease. In October, 1910, also, a bacillus-carrier of this disease was detected at the New York quarantine.

The presumption would seem to be that this man Seide had the cholera spirillum of low virulence growing in his intestinal canal for at least the three weeks between his leaving home and his attack; and that when he became depressed or had his vitality and resisting powers lowered by the increased seasickness after the bad weather sprang up on the fourth day of his voyage from Bristol, the spirillum growing and multiplying rapidly induced an attack, which, though mild, bore all the earmarks of true Asiatic cholera.

Bacteriological examinations of Seide's excretions gave positive results all through December, January, February, March and up to the middle of April. After that, they were negative, and remained negative through the month of May. He was released from quarantine on the 30th of May, 1911, and was deported by the Immigration authorities on the 1st of June on the ground of defective mental powers.

On account of persistent threatening of cholera from Italy, and the establishment, by the case of Seide and others, of the possibility of cholera carriers, amongst the apparently healthy passengers arriving, a regulation was issued on the 27th of July in the following terms:—

"Circular to Quarantine Officers, the Commissioner of Customs, Ship Owners, Agents, and others concerned.

"Office of the Director-General of Public Health, Ottawa, Canada, July 27, 1911.

"*Sir or Sirs:*

"I am directed by the Honourable the Minister of Agriculture to inform you that, in order to diminish the danger of the introduction of Asiatic cholera into this country, he has issued the following orders:

"All steerage passengers arriving at ports in Canada from ports or places infected with cholera shall be subject to bacteriological examination at the quarantine station of the port and shall not be permitted to pass such station or to make customs entry, until it has been determined by such examination that they are not cholera-bacillus carriers. This regulation shall apply until further notice to steerage passengers from Italy coming directly or via intermediate ports.

"For all cholera contacts arriving on vessels upon which cholera has

occurred, the period of detention under quarantine observation shall be 10 days, unless after 5 days' detention they are found not to be cholera-bacillus carriers.

"Your obedient servant,
"(Sd) F. MONTIZAMBERT,
"*Director-General of Public Health.*"

We have no lines of steamships running directly between Italy and Canada; but Italian passengers arriving from Italy through other countries have been bacteriologically examined in compliance with the above cited regulations. These have numbered—arriving at the St. Lawrence River Quarantine Station—seventy-seven (77), and amongst them there have been found two (2) 'cholera carriers.' It will have been noted that in the last paragraph of the regulation just cited, the period of detention under quarantine observation for cholera contacts has been fixed at ten days, unless after five days detention they are found not to be cholera-bacillus carriers. This clause in the regulation was inserted to diminish the danger from cholera bacillus carriers. These regulations are still in force, and will continue to be carried out at the passenger ports of arrival, Quebec, Halifax and St. John, until there is such subsidence of the disease in Europe as justifies its suspension. Should the present epidemic of cholera in Europe continue and extend, it may be necessary to take into consideration the expediency of providing for the disinfection at the ports of entry of luggage packed in the infected districts, and brought out unopened in the holds of vessels, to obviate the danger of such luggage being first opened inland, and clothing soiled with cholera discharges washed, and the contaminated water possibly getting into water supplies, as well as infecting persons engaged in the actual washing. This precaution was taken at the ports of entry during the cholera epidemic of 1892–96.

REMARKS ON THE WASHINGTON SANITARY CONVENTION OF 1905

WITH SPECIAL REFERENCE TO YELLOW FEVER AND CHOLERA

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I propose in these remarks to study some changes that I think should be made in the Washington Convention of 1905. It should be remembered that the Conference of the American Republics held on that date agreed to accept the Paris Convention of 1903, adding all that was pertinent to the management of yellow fever, thus filling the blank left in the European Convention.

Otherwise the American Convention differs from the European only in that we insisted upon the use of the word "observation" generally in lieu of the word "surveillance." This has subjected our American methods to criticism from some quarters. Even in our own countries when complaint is made of the stringency of quarantine measures, and the detention of passengers for observation, some are apt to bring forth, in contrast, the more liberal practice of some European countries, specially England.

I wish to dwell briefly upon the difference of conditions that has brought about the difference of procedures that we have mentioned. Our American countries enclose extensive territories into which are flowing continuous streams of immigrants. It is next to impossible to keep track of these dispersing multitudes over ranches, mining camps and sparsely peopled communities. Hence the necessity of some detention of suspects and contacts at the point of entry. The nations that, at home, stand for the open door in matters of quarantine are very far from carrying these methods into their colonies. The shores of the Red Sea are dotted over with quarantine stations for the control of the movements of pilgrims who, in many respects resemble our immigrants. Ceylon and Malta also are well provided with detention camps.

The changes I would suggest in the Washington Convention of 1905 are the following:

Article I in its present form reads: "Each Government should immediately notify other Governments of the first appearance in its territory of authentic cases of plague, cholera or yellow fever."

The article does not specify how many these first cases should be, and

in the use of the plural it seems to leave a loop-hole to await for several cases to occur before the notification is made. It seems to me that the specification should be made on whether the cases be imported or not, and in the latter event, a single case should make the declaration obligatory.

I would propose that the article read:

Article I. Each Government should immediately notify other Governments of the first appearance in its territory of *an authentic and autochthonous case of plague, cholera or yellow fever.*

Article VIII in its present form reads: "To limit the measures to the affected regions alone, Governments should only apply them to persons and articles proceeding from the contaminated or infected areas."

The amendment proposed to this article explains itself. I should only remind the reader that yellow fever has more than once broken out in localities from whence it had apparently disappeared, without fresh importation, and after many months of seeming indemnity. The explanation of this phenomenon is contained in the amendment, which is as follows:

Article VIII. To limit the measures to the affected region alone, Governments should only apply them to persons and articles proceeding from the contaminated or infected area. *Exception may be made in the case of yellow fever in sparsely populated countries with endemic foci, where the presence of a large immune population may conceal the existence of infected mosquitoes.*

The 3rd paragraph of the same Art. VIII now reads:

"But this restriction, limited to the infected area, should only be accepted upon the formal condition that the Government of the infected country shall take the necessary measures: 1, to prevent, unless previously disinfected, the exportation of articles named in 1 and 2 of Article XII coming from the contaminated area; and 2, measures to prevent the extension of the epidemic; and provided further, that there be no doubt that the sanitary authorities of the infected country have faithfully complied with Article I of this Convention."

This paragraph does not specifically require the Government to make all reasonable efforts to enquire into the possible extension of the disease into other sections of the country.

I would, therefore, propose that the paragraph read as follows:

But this restriction limited to the infected area, should only be accepted upon the formal condition that the Government of the infected country shall take the necessary measures, 1, *to investigate and report upon new cases that may present themselves in other areas*, 2, to prevent, unless previously disinfected, the exportation of articles named in 1 and 2 of Article XII coming from the contaminated area; and 3, measures to prevent the exten-

sion of the epidemic; and provided further, that there be no doubt that the sanitary authorities of the infected country have faithfully complied with Article I of this Convention.

Article XX now reads:

"Classification of ships. A ship is considered as infected which has plague, cholera, or yellow fever on board, or which has presented one or more cases of plague or cholera within seven days or a case of yellow fever at any time during the voyage.

"A ship is considered as suspected on board of which there have been a case or cases of plague or cholera at the time of departure or during the voyage, but no new case within seven days; also such ships as have lain in such proximity to the infected shore as to render them liable to the access of mosquitoes.

"The ship is considered indemne which, although coming from an infected port, has had neither death nor case of plague, cholera, or yellow fever on board, either before departure, during the voyage, or at the time of arrival, and which, in the case of yellow fever, has not lain in such proximity to the shore as to render it liable, in the opinion of the sanitary authorites, to the access of mosquitoes."

This classification is not correct in the part that refers to yellow fever, and it is not easy to make it so if we wish to preserve the division, sanctioned by usage, into the three categories mentioned. The difficulty is obviated if we exclude altogether those ships that have had no possible contact with any source of contamination; namely, ships coming from clean ports. Therefore I would suggest that the Article be headed: *Classification of ships proceeding from infected ports* which should, after all, be the subject of interest in a sanitary Convention.

If we proceed now to analyze the article we find that the first paragraph is wrong, because a ship can not be called infected if it has a case of yellow fever on board, but no mosquitoes.

The second paragraph is deficient, because it might admit as suspected ship that is more dangerous than the one described in the first paragraph as infected. If the mosquitoes from the infected shore mentioned in the second paragraph are infected mosquitoes, there certainly can not be a ship more infected than that.

The third paragraph is wrong, because it does not take cognizance of the fact that infected passengers might have been embarked at the port of departure, and if the trip has lasted less than six days, they may not have had time to pass the period of incubation. A most dangerous ship to be called indemne.

The writer of these notes is mostly responsible for these errors that he is

now criticizing, but the adaptation of the Paris Convention to the problems of yellow fever was done without any preparation and with little time to dispose of; and, furthermore, the measures dictated for the management of these several classes of vessels, sufficiently safeguarded the health interests. As will be seen later on, these measures, practically require no modification.

I would propose, therefore, that the Article read as follows:

Article XX. Classification of ships *proceeding from infected ports.* A ship is considered as infected which has plague or cholera on board, or which has presented one or more cases of plague or cholera within the last seven days. *In the case of yellow fever a ship is considered as infected which has yellow fever on board, or has had one or more cases at any time during the voyage, and which has been exposed to the introduction of mosquitoes on board.*

A ship is considered as suspected on board of which there have been a case or cases of plague or cholera at the time of departure or during the voyage, but no new case within seven days. *In the case of yellow fever, the ship which, having received persons and mosquitoes from the infected shore arrives after a trip of less than six days without yellow fever on board.*

The ship is considered indemne which, although coming from an infected port, has had neither death nor cases of plague or cholera or yellow fever on board, either before the departure, during the voyage, or at the time of arrival, *and which voyage, in the case of yellow fever, has exceeded six days, the ship not having been exposed to the introduction of mosquitoes.*

And now we come to Articles XXVI, XXVII, and XXVIII, dealing with cholera. They are far from being sufficient, and the Governments of the United States, Canada and Cuba, under advice of their respective sanitary departments, have been obliged to modify them essentially in dealing with the present epidemic in Europe.

During the past summer therefore, the passengers coming from infected ports have been detained, not for a specified period of time as is prescribed in the Articles we are criticizing, but according to the principles sustained in the concluding remarks of this paper; that is, the passengers have been detained until they could be proven not to be infective. This proof has necessitated the unpleasant operation of the introduction of a rectal swab.

I think it will be generally admitted that we were justified in doing this. There is, however, a matter of detail which should be very carefully considered. The Public Health and Marine Hospital Service of the United States in promulgating their new and important "Addition to Quarantine Regulations" dated July 19th, have restricted the application of these measures to the steerage passengers. The order reads: "All steerage passengers arriving at ports in the United States from ports or places infected with cholera shall be subjected to bacteriological examination and

shall not be admitted to entry until it has been determined by said examination that they are not cholera bacillus carriers." In a recent letter from Surgeon-General Wyman he calls my attention to the fact that the Quarantine Regulations of the United States would be sufficient authority to extend the application of these measures to the first class passengers, whenever it were deemed necessary, and this is, in fact, so; but I am inclined to think that this detention and examination of first class passengers should be specifically mentioned in the main body of the Regulations in force, and, as it will be seen forthwith, I propose to introduce the subject in the amendments to the Washington Convention.

This subject will serve, besides, to introduce formally in the body of the agreement the principle of a distinction in the management of cabin and steerage passengers. This principle was introduced in the Paris Convention by making special provisions for the pilgrims traveling on the Red Sea. We in America should establish the difference with respect to the immigrants who are unquestionably the main channel of introduction of infectious diseases.

The Articles in their proposed amended form would read as follows:

Article XXVI. Ships infected with cholera are to be subjected to the following regulations:

1. Medical visit (Inspection).

2. The sick are to be immediately disembarked and isolated.

3. *If no sickness has occurred among the first class passengers these may be disembarked at once or, at the discretion of the Health Officer, they may be disembarked at the Observation station, to be released as soon as they are proved not to be infected. In either case they may be subjected to surveillance for five days.*

4. *If there has been evidence of infection among the first class passengers, they shall be examined bacteriologically on board and disembarked immediately after, separating the bacillus carriers who shall remain under observation until their infection has disappeared. The remainder shall be kept under observation for five days, and released if no case of cholera develops among them.*

5. *The third class passengers shall be examined on board by the rectal swab as rapidly as possible. The bacillus carriers shall be isolated until their infection shall have disappeared. The rest shall continue under observation until a second swab taken on the seventh day prove the absence of bacillus carriers, when they shall be released.*

The rest of the Article, referring to other matters than the passengers remains unaltered, except that the paragraphs numbered 4, 5 and 6, become 6, 7 and 8.

Article XXVII. Ships suspected of cholera are to be subjected to measures prescribed under Nos. 1, 6, 7 and 8 of Article XXVI.

First class passengers will be subjected to the measures prescribed under No. 3 of Article XXVI. Third class passengers shall be examined on board by the rectal swab, as soon as practicable. If no bacillus carrier be found, and there has been no sickness on board, the said passengers shall be released, provided the duration of the trip has exceeded five days; otherwise they shall be detained until the completion of this period from the date of departure.

Article XXVIII. Ships indemne of cholera are to be admitted to free pratique immediately, whatever may be the nature of their bill of health.

The only regulations which the sanitary authorities of a port may prescribe in their case are the measures provided in Nos. 1, 6 and 8 of Article XXVI.

The crew and passengers may be subjected to a bacteriological examination, and be released immediately on a negative finding.

The remainder of the Article is not changed.

Article XXIX. It refers to the management of ships infected with yellow fever, and remains as it stands.

Article XXX. Ships suspected of yellow fever are to be subjected to the measures which are indicated in Nos. 1, 3 and 5 of the preceding article; and if not fumigated, the cargo shall be discharged as directed under subparagraph (a) or (b) of the same Article. *With respect to No. 3, the observation shall date from the last day of exposure to the infection.*

No amendment is offered to the other Articles, but their numbers are altered by placing those that refer to the yellow fever in their proper place after the consideration of plague and cholera, instead of placing them at the end.

In proposing these changes to our international sanitary code I believe it may not be amiss to discuss in conclusion and in a general way the subject of Quarantines.

We are all agreed in accepting that the Sanitary Conferences commencing with that of Paris in 1851, more or less successfully striving to arrive at some agreement which was finally obtained in the Venice Convention of 1892, worked for the general good. They mitigated the horrors of medieval quarantines, and in subsequent Conventions they continued the movement of reform, until even the name of the the thing was suppressed. Surveillance, observation, detention, isolation were euphemisms that came into general use. As a matter of fact they did represent actual progress in the direction of a more reasonable application of the principles upon which the system of quarantines was founded.

But did they change in any way these principles? Were the principles themselves suffering any change through the increasing acquisitions of science? On the contrary, every step in advance, up to the present date, reaffirmed the principles upon which quarantines were based. Epidemiologic investigations, the new science of bacteriology, the development of

the doctrine of infection, the recognition of the mild forms of infection, and of the possible prolongation of the infective state, were all pointing clearly to the individual as the main source of danger, and were establishing on most solid foundation the conclusion that the sick individual should be restrained, treated or controled in some way until he ceased to be a menace.

This was the principle of the old quarantines: to hold the individual until he was not more dangerous; but our ancestors had no scientific means of determining the point in question, and in a hit-or-miss way they prolonged the detention for days (forty days which constituted the reglamentary quarantine) and for weeks and months. This actually militated against the object in view, and could not help but bring the system into discredit.

But if today we can determine very generally when an individual is dangerous, and when he ceases to be so, why should we not detain him when he comes from abroad, caring for him at the same time, and giving him a good chance for recovery, until he ceases to be a menace? Why not do this, and call it quarantine? And why should we not clearly state that this should be our main object: the prevention of the propagation of disease.

I read in an important book on Prophylaxis* that "the object of international prophylaxis is twofold: to prevent the propagation of contagious diseases, and to suppress all needless restraints to commerce through measures that are void of efficiency."

In the discharge of our duty as sanitarians we should be willing to go as far as any one in protecting commerce and the industries against all unnecessary hindrance, but we should not be willing to say that that is one of the objects of sanitary science. It is much as if we said in a definition of Medicine, that the object of that science is to manage disease with as little expense to the patient as possible; or as if a military writer said that the object of war is to fight successfully and do as little damage as possible. Let us consider the latter aspect of these problems as a most important element in ways and means; but let the prevention of disease be our only object.

I venture to say that the time has come when we should squarely put the question as to how, on their part, commerce and the industries have corresponded to our efforts to safeguard their interests. I am not aware, that any writer on economic questions has ever given a definition of business that might be considered in keeping with the one above quoted in reference to international prophylaxis; no such writer has ever said, for instance, that the object of business is twofold: to make money and to see that the interests of sanitary science be not needlessly trammeled.

In my rather long experience with serious epidemics I have never once failed to find important business interests enlisted against us during the

* Prophylaxie Internationale et Nationale, par le Dr. Paul Faivre (Paris, 1908).

first stages of the epidemic manifestation. It would not be difficult to prove that most of these outbreaks have gained strength because of the insistent demand on the part of business not to be disturbed by the frank declaration of the truth. The result has been that the first steps in prevention have been taken with fear of making too much noise. The work has been done in the dark, as it were, and in that manner, it could not be well done. On certain occasions this procedure is most inhuman. An infected city, for instance, holding some popular celebration, will conceal its condition and open its gates to the influx of strangers, who have returned to their homes carrying the disease with them, and spreading it wide over the country. There are recent examples in Europe and we have done the same thing in America.

The frank confession of the truth, the open handling of first cases and of suspects saved Florida from an extensive conflagration in 1905; saved Cuba, at the same time, from the repetition of the horrors of a wide-spread epidemic, such as she was familiar with in colonial days; saved Mexico from becoming an endemic focus of plague, has saved New York quite recently and is protecting Germany at the present time. The truth in these matters I hold, should have the precedence before science.

In some of these epidemic diseases, in which we have not found as yet some laboratory method for diagnosis, great reliance is placed on the opinions of certain men. I know not how often I have found the young man, entirely unacquainted with the disease through former experience, to be in the right, and the old veteran to be in the wrong. I do not hesitate to say that a long standing reputation in this field is more due to a fearless regard for the truth than to scientific attainments.

And if we are not going to have the truth, what is the use of holding international conferences? All sanitary conventions are based on the good faith of the contracting parties. Are they standing up to their obligations? Our recent experience with the cholera epidemics proves that they are not, and I hope that this has been taken into consideration by the Sanitary Conferences that are being held at this moment in Paris and in Santiago de Chile.

It has occurred to me that we might with advantage employ in international sanitary practice some of the methods accepted in diplomatic international relations. It is well known that on the eve of important international developments the representatives of the Powers have called upon the Government principally involved in the political question, and have asked in a formal manner as to the purposes of said Government, and have even tendered some frank advice, sometimes with the object in view of preventing unnecessary strife and loss of life. Such conferences have not been rare in connection with the Balkan problems and those in which the nationalization of Italy was concerned. Quite recently the representa-

tives of the Great Powers convened in Washington during the negotiations that culminated in the Spanish-American war, to express through the Secretary of State an appeal to the moderation and humanity of the American people in the negotiations with Spain.

War and bloodshed were at stake in these conferences. But now I ask you to muster all the human lives that were lost in these conflicts. Pile the dead that fell on the Black Sea shore of Crimea, on the fertile fields of Northern Italy, and under the Tropical Sun of Cuba and the Philippines: what are they, compared with the hosts that have dropped in the wake of an invasion of cholera? Now if a Government be conspiring to inflict this evil upon neighboring and distant nations; if a Government be bent on concealing the existence of cholera in populous and commercial sea-ports from which throngs of emigrants are moving across the seas, that nation should be called upon to meet squarely the responsibility of her acts, and a conference of the representatives of the powers accredited in her capital, should demand a truthful statement of the facts, in the name of humanity.

MEASURES ADOPTED BY THE UNITED STATES GOVERNMENT TO PREVENT THE INTRODUCTION OF CHOLERA

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Read before the American Public Health Association, December, 1911. Havana, Cuba

Since 1893 the United States has not been seriously threatened with the possibility of cholera until the fall of 1910. At that time cholera, which had been prevailing in southern and western Russia for two or three years, made its appearance in Italy. It did not appear in Italy until late in the summer and fall of 1910, and with the onset of cold weather the epidemic decreased markedly in that kingdom. In the spring of 1911, however, the infected area in Italy became wider and the number of cases greatly increased, so that it became necessary for the Federal Government, through its Public Health Service, to adopt unusual measures in order to prevent the entrance of cholera into the United States during the past summer.

The measures instituted to prevent the introduction of cholera into the United States may be considered under three general heads:

1. Quarantine measures enforced at the foreign ports of embarkation.

2. Quarantine measures enforced during the voyage; and these may be divided into (a) those provided for in the United States quarantine regulations and (b) those enforced by the Royal Italian Commissioners.

3. Quarantine measures enforced on arrival of vessels at the various quarantine stations in the United States; and these may be subdivided into (a) special inspections for the detection of cholera by quarantine officers (b) the immigrant destination notification system, and (c) expert aid in the diagnosis of cholera.

Officers of the Public Health and Marine-Hospital Service were detailed, under authority of the quarantine laws, for duty in the enforcement of these measures at Genoa, Naples, Palermo, Messina, and Catania, Italy; Marseilles, Triest, and Libau.

The measures enforced at foreign ports, made in accordance with the United States quarantine regulations, consisted of the enforcement of a detention of five days of steerage passengers from cholera-infected ports and the observation of those detained during that time. The disinfection of baggage was required and the prohibition of any food stuffs being brought in the baggage of steerage passengers. In addition, steerage passengers from cholera-infected districts but embarking at clean or non-infected ports

were required to produce satisfactory evidence as to their place of residence during the five days immediately preceding embarkation. Crews of vessels were not allowed ashore in infected ports. In addition to this, every immigrant before embarkation was subject to a strict medical inspection. The Italian Government, in addition to the measures required by the United States quarantine regulations, put into effect, for the time, the examination of detained immigrants to detect possible bacillus-carriers, and by this means alone 41 carriers were prevented from sailing from Italian ports.

Under the second general heading were the special requirements of the United States quarantine regulations in regard to ships from infected localities, which included among other things the isolation of all sick persons and the complete disinfection of their clothing, bedding and discharges. A complete clinical record was required to be kept by the ship's surgeon of all cases of sickness aboard and the record delivered to the quarantine officer at the port of arrival. The Italian law requires that on every Italian vessel carrying Italian immigrants there shall be a Royal Commissioner, who is an officer of the medical corps of the Italian navy. This officer, in addition to seeing that the Italian immigration regulations are carried out, is charged with certain sanitary duties which he exercises on vessels outward bound from Italy as well as on the return voyage. Their sanitary duties consist of reports to the Royal Commissioner of Immigration of every case of infectious disease occurring among immigrants or any case presenting the suspicion of an infectious disease. During the past year they had special orders issued to them which gave them exclusive control as to the hygienic and disciplinary measures to be enforced aboard vessels for the early detection of cholera. They were required to keep material from all cases of diarrhoea occurring on board and also from any deaths occurring at sea, and provision was made for the sending of wireless messages to the Italian consulate at the port of destination, so that the presence of cholera aboard a vessel would be known before its arrival. They were provided with a small working laboratory for the diagnosis of the disease.

In accordance with an arrangement with the Department of State these commissioners rendered reports to the quarantine officers at the port of arrival in the United States as to the condition of health and all details of any sickness occurring on their vessels. The great value of this work was well shown in the Duca degli Abbruzzi, from which vessel cases of cholera were removed at the New York quarantine. The Royal Commissioner on this vessel, by preserving material from a child who had died at sea with suspected symptoms, enabled the quarantine officer to make a diagnosis of cholera; the bacteriological diagnosis was confirmed in the Hygienic Laboratory in Washington.

It may be stated that the aid rendered the quarantine service by the

Royal Commissioners has been of a very high order and their services have been greatly appreciated.

Under the third general heading are the measures adopted on arrival at the quarantine stations in the United States. In addition to the quarantine regulations previously enforced these requirements were added to by certain amendments to the quarantine regulations. On July 6th an amendment to the quarantine regulations was promulgated which, among other things, contained the following:

To diminish the danger from cholera bacillus-carriers, passengers coming from ports or places where cholera prevails and arriving on vessels upon which cholera has been reported, shall be detained ten days for observation, unless after five days detention they are found not to be bacillus-carriers. The same provision shall also apply to other persons arriving on said vessels who, for special reasons, are deemed liable to be thus infected.

Attention in the same circular was also invited to the special regulations on account of cholera which prevented the bringing in or the shipment of certain food products, such as unsalted meats, sausages, fresh butter, cheese, fruit, etc., and any food in the possession of passengers arriving in the United States was ordered to be destroyed.

While it was believed that the above referred to amendment to the regulations considerably added to the safeguards previously enforced to prevent the entrance of cholera into the United States, the great increase of the disease in Italy and its spread to other Mediterranean ports resulted in the promulgation on July 19 of another amendment to the quarantine regulations in which the following occurs:

All steerage passengers arriving at ports in the United States from ports or places infected with cholera shall be subjected to bacteriological examination and shall not be admitted to entry until it has been determined by said examination that they are not cholera bacillus-carriers.

This amendment to the regulations, which had been under discussion for some time, was put into effect from the date of its promulgation at the ports of New York, Boston and Providence, which ports were the only ones having direct Italian immigration.

Under authority of the quarantine laws of the United States Passed Assistant Surgeon R. H. von Ezdorf was detailed as inspector of the local quarantine at New York and Passed Assistant Surgeon Allan J. McLaughlin under a similar detail at the local quarantines at Boston and Providence. In addition, two officers from the Hygienic Laboratory especially trained in the bacteriological diagnosis of cholera were sent to the New York quarantine to supervise and assist the local quarantine authorities in the large number of bacteriological examinations made necessary by the amendment to the regulations.

Specimens were obtained from all steerage passengers, and in certain

instances from the crew, and subjected to bacteriological diagnosis in order to determine whether the discharges came from cholera-carriers or from persons in the early stages of the disease.

From July 1 to November 1, 1911, there arrived at the ports of New York, Boston, Philadelphia, Providence and Baltimore over 237,000 passengers, all of whom were subjected to a strict medical examination and in spite of this large number of passengers arriving at ports in the United States, of whom about 25,000 came directly from cholera-infected countries, no outbreaks of cholera have appeared in the United States.

In the search for cholera-carriers over 23,000 bacteriological examinations were made, with the result that at the New York quarantine the cholera vibrio was isolated from 28 persons with the disease and 27 healthy persons were found to be discharging the causative agent of cholera in their faeces; these latter could not have been detected except by the laboratory examination required by the amendment to the Federal quarantine regulations promulgated under date of July 19, 1911. It can be stated, I believe, without fear of contradiction that the adoption of this measure alone by the Federal Health Service has saved the people of the United States from the horrors and expense of a large epidemic of cholera.

In addition to the measures just referred to, the immigrant-destination notification system was continued. In accordance with this system, where immigrants arrive from cholera-infected places, the health officers at their places of destination are sent the notification cards, informing them that immigrants from such and such places arriving on such and such a ship are en route to their cities, so that they may have oversight during the incubation period, at least, of cholera. While it was realized that in some cases these cards soon found the waste basket, it must be admitted that such an event was not due to the system but to faults beyond the authority of the Federal Government at the place of destination.

The third measure was expert aid in the diagnosis of cholera. The Service has available a number of officers who have not only had clinical experience with cholera, but have had a large experience in its laboratory diagnosis. There have been reported to the Surgeon-General of the Public Health and Marine-Hospital Service a number of suspected cases of cholera from various portions of the United States, and in such instances the case was investigated by an expert from the laboratory.

As a result of the enforcement of these measures, which have been but briefly referred to, there have occurred only five cases of cholera other than those at quarantine or on vessels in quarantine in the United States and in no instance has there been a spread of the disease from any of these cases; thus again demonstrating the efficiency of quarantine methods against cholera based upon the result of laboratory investigations.

The enforcement of these measures, which at first sight may have

seemed severe and burdensome, has been carried out with a minimum of interruption to immigration or interference with commerce. This is the first time in the history of quarantine in this country, or in any other country on so large a scale, that a quarantine has been enforced based upon the principle that if a person liable to convey infection has been shown by laboratory examination to be free from such possibility, there should be no hindrance to his entrance into the country.

As cholera is still present in certain parts of Europe we are not, to use a homely expression, "out of the woods;" but the prevention by the Federal Health Authorities of the introduction of cholera into this country during the summer of 1911 is an achievement in public health work not surpassed since we learned how yellow fever may be prevented.

THE DEFENSE OF THE MEXICAN REPUBLIC AGAINST THE POSSIBLE INVASION OF CHOLERA

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Read before the American Public Health Association, Havana Cuba, December, 1911

In order to demonstrate to the public authorities that the measures proposed to safeguard the Mexican Republic against the possible invasion of cholera, were based on exact scientific data the Mexican Board of Health issued two pamphlets in which was stated the general well recognized facts concerning the disease and the manner in which it is spread.

I will not weary you with reading these pamphlets. One was intended to give every individual, every family or small group, a knowledge of the germ of the disease, of the way in which it can enter the system, of the way in which it issued from the same, and inculcate the fundamental idea that the excreta is what contains that germ, and that the most certain way to prevent any attack by the disease, is to disinfect with the greatest care, the vomit and dejecta of the patient; to avoid carrying to the mouth any article that can in any way have been contaminated by that germ, and to warn everybody against the danger of introducing the germ of the disease into the system by means of contaminated water. The other pamphlet is called "Recommendations to the Municipal Councils of the Republic, and specially to those of the Cities on the United States frontier, or of the ports on the Gulf of Mexico," and is intended to instruct those communities on the measures which they ought to take to protect themselves from cholera.

The same knowledge of bacteriology has served as a basis for the instructions given to the Delegates and communicated to the State Governments, the Political Chiefs, and the Mayors of Municipalities.

The instructions issued by the Board form three principal groups as follows:

I. Those which are intended to prevent the disease reaching us from the points in which it now exists;

II. So that if those measures are not sufficiently efficacious, each community may have the resources necessary to defend itself from an epidemic, and

III. So that these resources may also be within the reach of small groups, even the family and the individual, in order that they may all be able to defend themselves from disease.

This is the order in which I propose to explain the measures which have been adopted.

The measures which are intended to protect the nation as a whole, are those which pertain to the International Sanitary Police and of these the following have been adopted:

As it is impossible to establish either Sanitary Stations or Lazarettes, equipped with the buildings and a sufficient staff to make a defense against cholera in all the ports of the Republic, by special Decree of the Executive, the Ports of Tampico, Veracruz and Progreso on the Gulf Coast, have been selected to receive passengers and cargo from the foreign countries which have been invaded by cholera, and the Port of Coatzacoalcos, to receive only the cargo, in order not to disturb the interoceanic traffic over the isthmus of Tehuantepec. On the Pacific Coast, the Port of Salina Cruz is the one best equipped to receive passengers and cargo from the Orient, where cholera prevails almost continuously. That port not only has a sanitary station and lazarette for the first and second class passengers, but also sheds with a capacity of 700 immigrants, where they can be kept under observation before allowing them to pass into the interior of the country. The introduction of immigrants exceeding ten in number is prohibited in the other Pacific ports, because up to that number, it is possible to submit them to the rules of the Sanitary Code.

As I have stated, the ports which are open to receive vessels from countries which are invaded by cholera, possess a sanitary station and lazarette with departments for the reception of the suspects, the confirmed cases and the convalescents. They are furnished with an equipment for the destruction of the dejecta before they are thrown into the sea, and are also provided with screened doors and windows, which will not allow the entrance of flies or mosquitoes into those places where sick or suspected persons are kept.

In order to give confidence to the employees who have to board the vessels arriving from infected parts, orders have been given for the propagation of anti-cholera vaccine amongst the sanitary agents, as well as those employed by the treasury, the longshoremen, consular agents and all other persons whose duties carry them on board the ships when they reach Mexican ports. As we do not have absolute confidence in these vaccines, orders have also been given, that all persons even though vaccinated, shall make no use of the water carried on board the ships, and they have been recommended to take all the precautions referred to in the "instructions."

In order to facilitate the rapid diagnosis of doubtful cases by the delegates in the ports, they have been furnished all the different resources taught by bacteriological science, for making a rapid discovery of the cholera germs. In those ports in which the staff is not sufficiently trained, they have been provided with sterilized vessels in which the excreta are

deposited for purposes of examination. Those from the Port of Progreso are examined in Merida, and those from Veracruz in the Bacteriological Laboratory of the Supreme Board of Health, and wooden vessels have been sent to them, which will permit the transportation of those matters without danger to the carriers or of the spread of the disease.

Instructions have been given to the delegates, besides those which are set forth in the Sanitary Code and Maritime Sanitary Regulations. These instructions have been worded in such a way as to utilize the present knowledge of science, and so discover the bacillus carriers by making an analysis of their excreta, and not to suspend their treatment as suspects of carrying such germs, until the bacteriological examinations, repeated during five consecutive days have demonstrated that they are no longer dangerous. As will be understood, the instructions vary according to the port which is open to traffic, as well as for Coatzacoalcos which can only receive cargo, and for the other coast ports which can receive neither passengers nor cargo.

In the frontier towns, provisional lazarettes have been established, and the sanitary inspectors of those localities, have also received instructions which amplify and complete those already contained in the Sanitary Code.

If, in spite of all these precautions, cholera should invade either the ports or frontier cities, the authorities of those places have a series of "Recommendations," which are intended to give general rules for each locality, whatever may be its condition and whatever may be the sanitary services already established, and these recommendations give all the information possible for preventing the propagation of the disease.

These recommendations have also been forwarded to the other Municipalities of the Republic, through the State Governments, in order that they may reprint them and distribute them throughout each State.

In order to furnish means of defense against cholera and place such means within the reach of social organizations, families and individuals, a large edition has been printed of the "Instructions for the defense against cholera, by each individual or family," and these have also been distributed through the State Governments with a request that they should order them reprinted if found suitable.

Both the "Recommendations" as well as the "Instructions," are based on our modern knowledge of cholera dissemination in order that everyone should know that these recommendations are made and based on scientific data.

In the defense which is being organized in the Capital of the Republic, an attempt is made to get all classes of society to contribute their efforts in preventing the arrival of the disease, and if in spite of all precautions it should appear, to contribute to prevent its propagation.

The Executive has been consulted as to the advisability of securing the

rapid extinction of the epidemic of typhus, both because it will be more easy to fight a single epidemic, as well as because, all the measures which may be adopted for the suppression of typhus, will redound to the advantages of those which may be taken for the defense against cholera.

As is natural, the Board which is directly charged with the care of the public health, has found it necessary to increase its staff, and has done so by increasing the number of Sanitary Inspecting Physicians who make domiciliary visits, not only for the purpose of discovering the sick, but also to report on the sanitary installations in the different places which serve as a more or less permanent dwelling to a great number of individuals.

A special service has been organized of non-medical inspectors, whose duty it will be to execute the orders which may be issued by the Sanitary Authorities.

Special instructions have been issued for the use of the medical and non-medical inspectors, the food and drink inspectors, the veterinarians who are charged with the supervision of the slaughter houses, butcher shops and dairies, and all other branches of Sanitary Police.

An increase has also been made in the Staff of the Sanitary Engineers, who are consulted by the Medical Inspectors. An increase has likewise been made in the Staff of the Disinfecting Department, which not only will disinfect the places in which sick people or suspected people are found, but also whitewash the dwelling of the poor after the disinfection is made, and provide the persons who attend sick individuals, with new and disinfected clothing in place of that which was worn during their attendance on the patient.

Those persons, after being bathed and disinfected, are taken to houses of detention which have been provisionally established in the four cardinal points of the city, so as to lodge them whilst their dwellings are being disinfected and whitewashed.

In order to avoid crowding, only the persons who can live there with the sufficient quantity of air, are allowed to return to the dwellings originally occupied by the sick, after the rooms have been disinfected and whitewashed, and the rest of them are left, in the houses of detention, under the charge of the Charity Boards which already exist in the city.

As the public services in this city are under the charge of the Public Works Office, that Department has assumed the care of the springs of drinking water, so as to prevent, under the provisions of Art. 338 of the Sanitary Code, the contamination of those springs or of the water cisterns, by the dejecta which may contain the cholera germ. The same office is charged with the supervision of the water supply system, the sewer system of the city, which is constantly kept clean by flushing with water that is pumped in from the pumps at the head of the Calzada de la Piedad.

It is also charged with street sweeping, incineration of the garbage, super-

vision of the cemeteries and in combination with the Board of Health it takes the necessary precautions in the transportation of dead bodies; it specifies the cemeteries and points therein, where such bodies are to be buried, and orders the destruction of these bodies by cremation whenever possible.

As the plant to bring pure water from Xochimilco is not as yet completed, the Public Works Office is taking water to the districts which have none, and a study is being made of the way to supply the water after boiling. As the sewer system is not yet complete, steps are being taken to give the best possible service for the removal of the excrementitious matters, in those parts of the city which are not reached by the sewers.

With the resources at its disposal, the District Government will undertake to enforce compliance with the provisions above mentioned, by means of the police.

The Department of the Interior has been requested to address the War Department through the channel of the Special Office existing in that Department and the instruction hospital, to charge itself directly with the cleaning of the barracks and other places where the garrison has to render service, as well as the destruction of the cholera germs in the excrementitious matters that proceed from those localities, and also to give the soldiers instruction in the precepts of individual hygiene, so that each one may understand how to defend himself against the epidemic.

Through the same channel of the Department of the Interior, a request has been addressed to that of Public Education, to make efforts to avoid the propagation of cholera in all the educational establishments which are subordinate to this Department, by means of its school hygienic service. A request has also been made for the assistance of the institutions which depend on that Department, such as the National Medical Institute, the Bacteriological Institute and the Anatomo-Pathological Institute, in order that these important institutions may afford the assistance within their power; the Bacteriological Institute furnishing, as it has hitherto done, the anticholera vaccine, the material necessary for the rapid discovery of the cholera germ in the dejecta, and in the event of the disease making its appearance in the city, by making the bacteriological diagnosis in the excreta which may be forwarded by the physicians near that institute. The Anatomo-Pathological Institute will also contribute by associating itself with the physicians of the hospitals, in the study of the dead bodies of cholera patients, and lastly, the National Medical Institute will assist by discovering the cholera germ in the excreta which may be forwarded by the physicians who attend patients in places near the Institute.

The same Department of the Interior has been requested to reserve a sufficient number of wards in the General Hospital, in which to attend patients who suffer from confirmed cases of cholera, and another to be

occupied by convalescents. As regards suspects, there is a service already organized for that purpose which will be extended if found necessary.

The same wards have been applied for in the Juarez Hospital, as well as the erection of special sheds if the requirements of the service should make them indispensable. Furthermore, a request has been made that each hospital be equipped, with bacteriological service, if it does not already exist, which will be devoted to making a prompt diagnosis of patients who are suspected of suffering from cholera.

As the Board of Health has a right to promote the organization of Charity Boards in cases of epidemic, it has been thought best to come to an understanding with those already existing, so as to obtain their valuable assistance in the relief of the unfortunate.

A Special Committee of the Board of Health is now deliberating on the request which will be addressed to the Medical Profession, on the necessity of their giving the Board notice of the patients they attend, whether suspected or confirmed cholera cases, and within the shortest possible time. As soon as the Department agrees to lend the services of the Institutes above mentioned, in making a prompt diagnosis of the disease, these physicians will be notified of the place where they can apply for such bacteriological examinations.

Another Committee is studying the way and means to come to an understanding with the wholesale and retail druggists, so as to know what services they will be able to render for the rapid supply of medicines, so that the patients may be attended without loss of time.

As the city contains many industrial or mercantile establishments which employ a great number of persons, most of those establishments have been requested to state, the manner in which they can contribute to the assistance of the sick amongst their own staffs or of their families who may suffer privations through the sickness of the persons who maintain them. Similar enquiries have been sent to the Railroad companies, both national and foreign, and a greater part have already reported to the Board on the resources at their disposal and have generously offered to co-operate with the Sanitary Authorities, in the struggle against the spread of the disease, and in the attendance of the persons attacked. If we have the good fortune of not seeing the cholera reach the capital city, the work undertaken for the assistance of the Sanitary Authorities will not be in vain, as the publication of the doctrine of the disease and of the measures which must be taken for defense against it, is always useful. But if unfortunately we should find ourselves invaded by that terrible epidemic, having our preparations made for defense with due anticipation, and before the multitude is carried away by fright, that defense will be better organized.

INSPECTION OF FEBRILE PATIENTS NON-IMMUNES TO YELLOW FEVER AND INSPECTION SERVICE OF PASSENGERS FROM THE MEDITERRANEAN PORTS

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Read before the American Public Health Association, December, 1911. Havana, Cuba

The purpose of my paper is to make known to those who are honoring us with their presence; and those who may not be acquainted with the systems employed by our Sanitary Department, the manner in which our Yellow Fever Service works in the inspection of non-immune febrile patients, and the studies which we have been making in connection with the house-to-house inspection of passengers arriving from Mediterranean ports, where cholera has made its appearance.

The Department of Health and Charities, to which I have the honor to belong, is proud to be able to say that it exercises a real control over yellow fever, but with regard to cholera, fortunately our services have not as yet been put to a test. I can assure you, however, that the lives of all here are perfectly safeguarded, and that when you depart satisfied of having faithfully complied with the sacred duty that brought you here, you will enjoy perfect health.

No one could have dared to make this prediction ten years ago!

And that satisfaction which we feel, necessarily must be felt among you, because it is also your work. Side by side with the name of our immortal Finlay we shall engrave with characters of gold the names of others, whom I shall not mention, fearful as I am of hurting their modesty; who are among my hearers and because their names are too well fixed in the minds of all; men to whose genius Cuba owes so much. Not only my beloved country, for it is Humanity that has been their beneficiary.

Inspection of Febrile Patients Non-Immune to Yellow Fever.

Articles 284 and 286 of the Sanitary ordinances provide that in all Hospitals, Private Hospitals etc. there shall exist one or more wards equipped with double screened doors and windows for the purpose of preventing the entrance of mosquitoes, and which shall be used for non-immune febrile patients as may apply for assistance at those establishments. These are known as Observation Departments or Wards.

Although it is true that the above mentioned regulations provide only that non-immune febrile patients be placed in these wards; it is likewise true, that the Directors of these establishments, in order to co-operate in our work, make it a rule to admit to them, those who although not presenting a feverish condition at the time they are examined, show symptoms of icterus, albumin or frequent vomit, etc., or those who should be kept isolated until a true diagnosis can be established. In that manner we prevent patients affected with yellow fever of the benign or atypical form to remain unprotected during the period of incubation.

These patients are visited every day by a Special Medical Inspector who makes a close examination of each case, has an analysis made of the urine in search for albumin or the diazo-reaction and who may even order that the Laboratory of the establishment shall proceed to take blood samples to establish the diagnosis of typhoid or malaria, etc.

As soon as the differential diagnosis to yellow fever is established, the Medical inspector authorizes the "Pass," notes the diagnosis on the temperature chart, which he should have previously dated and signed.

If for some reason or other the differential diagnosis should not be established and the patient should for any reason be suspected, he then refers the matter to the consideration of the Commission of Infectious Diseases, for which purpose he fills out a blank stating the particulars, name of the patient and antecedents. The Commission which is composed of five members, is then charged with reporting whether or not the case is one of yellow fever.

From the moment the Commission or the Medical Inspector reports the case as negative of yellow fever, the "Pass" of the patient is authorized and he is taken to another ward.

In the same manner and in accordance with the provisions of Article 484 of the Ordinances, all practicing physicians are duty bound to report to the Local Health Officer the existence of febrile cases in non-immune patients who may come under their care at their homes.

Immediately after the receipt of such a report such patients are at once visited by the Medical Inspector.

If any of these cases should happen to be suspected of being yellow fever, the patient is ordered transferred to the "Las Animas" Hospital, with the proper precautions, in one of the service ambulances.

On the other hand if the patient should not present any symptoms of yellow fever, the Local Health Officer, on receipt of the report from the attending physicians in which the diagnosis is made of the case, forwards it to the corresponding Bureau so that steps may be properly taken, or to order the record on file if the case is not one of reportable disease.

In order that you may form an idea of what this system of inspection represents, I have taken the record of the patients sent for inspection at

the Observation Wards of the Hospitals and Private Hospitals and from the 1st of January, 1909, date on which was inaugurated the Department of Health and Charities up to the 30th of last month. This record shows that 11,281 patients were examined and gives a total of 33,918 visits on the part of the Medical Inspectors. This does not include the cases of patients treated at their homes by practicing physicians, which number I am not able to give owing to lack of time in obtaining the records.

It frequently happens that we have to examine a patient who on account of the advanced state of the malady, or through the fact that he is in a comatose condition and we are therefore unable to obtain the necessary antecedents in the case. In suspicious cases of this kind, an autopsy is ordered shortly after death occurs. This autopsy is performed by the Commission of Infectious Diseases in order to establish a definite diagnosis.

When this autopsy is performed the material sufficient to proceed with the histological examination is taken and studies and investigations are made under the most modern methods.

In the same manner, all certificates of death issued by physicians, must be "viséd" by the Local Health Officer before they are transmitted or accepted by the Municipal Judges. In this way the suspension of any burial can easily be ordered in time in the cases of non-immunes or of persons where the attending physician is in doubt so that the case may be examined by the Commission and an autopsy ordered if necessary.

In order that we may know at a given moment the stopping place in the city of persons arriving from zones where yellow fever has broken out, and in that way protect Havana from all possible infection, we have organized a service which shows the arrival and departure of all persons at the Hotels, Inns, Boarding Houses, tenements, etc., whereby the owner or manager of these establishments furnishes us with a detailed statement of the guests who arrive and depart from his place every day, and on which report is specifically stated, the place last visited and the place where they go next to reside.

In the same manner we have records of the domicile of passengers arriving at our harbor proceeding from other ports in the island on information which is furnished us by the Quarantine Office.

This service has been put to work in all the local health offices throughout the Republic immediately after a case of yellow fever has been reported at any place within the island.

The blanks which are used for this service by the owners of the establishments on which is reported to us the daily movement of guests, as well as the envelopes with postal frank to contain them, are furnished free by the Department of Health, so the compliance with this disposition is in no way burdensome.

The following is a fac-simile of one of the blanks used:

REPUBLIC OF CUBA

DEPARTMENT OF HEALTH AND CHARITIES

DIRECTORSHIP OF SANITATION

SPECIAL REPORT

Class of the establishment ..... name .....
..... located at .....
..... 19 .....

Director of Health:

.....

Sir:

In compliance with orders, I have the honor to inform you, that during the day yesterday, there have arrived and departed from this establishment the following persons:

ARRIVALS

NAME	AGE	NATIONALITY	PLACE WHERE LAST RESIDED

DEPARTURES

NAME	AGE	NATIONALITY	ARRIVED ON		PLACE OF NEXT RESIDENCE
			Day	Month	

Yours very truly,

.....

.....

House-to-House Inspection of Passengers Arriving from Mediterranean Ports.

Ever since cholera made its invasion in epidemic form in Italy, the Department of Health, without loss of time, began to adopt all the necessary precautions in the matter based on the knowledge we had concerning the manner this disease is propagated and not forgetting the important part which is played by "Bacillus carriers." In order to face so serious a problem and in case we should be visited by this fatal disease we had to be prepared, and for that reason in the month of September, 1910, the Hon. Secretary of Health, on the recommendation of our Director of Sanitation, sent a delegate to Europe. He was instructed to study at Hamburg and Naples the laboratory work done in those cities, as well as to observe the system employed by the United States Marine Hospital Service to inspect and examine the immigrants proceeding from infected districts to ports in the United States.

Upon the return of the delegate, Dr. Cartaya, who was the physician designated, rendered his several reports, all of which have been published in the Official Bulletin of the Department of Health and Charities.

During the month of June when the disease was reported as having in invaded the Quarantine Office in New York city, Dr. Juan Guiteras was named by our Secretary of Health to proceed to that port to make a study, not only of the way the quarantine medical officers handled the large contingent of immigrants arriving there, but to make observations as well, of all patients attacked, paying special attention to the system employed to gather, examine and treat the excreta, and to make complete observations of every case. These studies and observations made at that time were recently published in the Official Bulletin.

While this was being done, we started to prepare our lazarets; the inspection of passengers arriving from Europe was carried on with the greatest precautions, and we began to thoroughly organize ourselves in order to be able to continue our observation of arrivals after they reached their destination without causing these persons the bother natural to detention.

We have employed several methods to obtain our object, and up to the present, we must confess that none of these methods have given us the results which we had hoped to obtain.

The one method which we are at present employing, is that of requesting the passenger who arrives at our ports, to give the place where he intends to reside; and this system which would appear to be satisfactory in reality is not. We find that there is trickery and bad faith, not only among the steerage passengers, but on the part of those who travel in the saloon deck, because many of these on leaving the steamer begin again to use their real names, which they had dropped in order to be able to escape military service in their native country.

Some of these individuals have been tracked all through the island and subjected to inspection on the part of the local health officers, and others have been found at the hotels and inns of the city of Havana. This we were able to do by consulting the lists of arrivals at these establishments, corresponding to the day of their landing in port.

The house-to-house service of inspection is carried out by medical inspectors, whose number is increased or diminished in relation to the amount of work to be performed.

We are at present preparing cards which are to be distributed among passengers arriving at our ports and whom we need to keep under surveillance after reaching land. These cards are written in three languages, and call their attention to the need of knowing their exact location, in order that they may be visited by the Medical Inspector, as well as the responsibility which they will incur if they fail to obey the orders.

At the same time we hand these immigrants another card which they can use to notify us of their place of residence in case they should happen to move from their first place, and in that way they are freed from the responsibility.

I will not take up any more of your time by extending the description of this work. I believe I have sufficiently explained the system we employ in the inspection of non-immune febrile patients. With regard to the inspection of passengers arriving from Mediterranean ports, you have just listened to Dr. Guiteras, who with the ability that is characteristic of him and the authority of his special knowledge of the subject, and who although he has given you but an extract of a report, it has been sufficiently extensive to allow you to appreciate that his is a complete work which would make mine poor in comparison.

But before I conclude, however, permit me to ask of the members of this association this question. Which is the best method of keeping track of a passenger without detaining him, so that he may be kept under proper surveillance during the necessary period?

AN ATYPICAL, ANAËROBIC GAS BACILLUS ISOLATED FROM VACCINE*

DR. WM. ROYAL STOKES and DR. HARRY W. STONER,
Baltimore, Md.

Read before the Laboratory Section, American Public Health Association, December, 1911, Havana, Cuba.

In the course of the routine examination of vaccine virus at the Health Department an organism was isolated from one set of ten capillary tubes which corresponded in many of its characteristics to the Bacillus welchii or the Bacillus aërogenes capsulatus, commonly known as the gas bacillus. It produced the typical "Schaumorgane" or foamy organs, due to the evolution of hydrogen gas in the viscera of rabbits, but showed a few variations and cultural differences from the typical gas bacillus, which we shall describe in detail. These variations are mentioned by Welch in the Shattuck lecture delivered before the Massachusetts Medical Society, June 12th, 1900, and he states that this is especially true of spore formation, rapidity of liquefaction of gelatin, presence of capsules, retention of Gram's stain, and virulence. The typical bacillus seems always to have liquefied gelatin, although sometimes slowly, and at times scarcely at all. Glucose, lactose, and saccharose are all fermented by the gas bacillus, but at times the gas production is relatively weak, but this is usually recovered after passage through the body of an animal. Variations in gas production and atypical results in milk and lactose bouillon will be described among the cultural characteristics of the organism which we have isolated.

The organism was recovered by inoculating a glucose fermentation tube with the tube of vaccine, and incubating under anaërobic conditions. The bacillus gave all of the microscopical characteristics of the gas bacillus, being non-motile and taking the Gram's stain, some few of the bacteria, however, decolorizing by this method. The intravenous inoculation of a rabbit, killed and kept at a room temperature for twenty-four hours, showed no apparent formation of gas. Organs from this animal, however when incubated at body temperature for twenty-four hours showed abundant gas formation. Inoculations from the glucose tube into fresh glucose bouillon, lactose bouillon, milk, gelatin, blood serum, and shake glucose agar showed growth only in the glucose bouillon and shake agar tubes. A second rabbit inoculated from the second glucose bouillon tube, killed and placed in the incubator for six hours, then kept at room temperature for eighteen hours, showed abundant gas formation. Cul-

* From the Bacteriological Laboratory of the State and City Board of Health, Baltimore, Md.

tures from the heart's blood of this animal when inoculated into glucose bouillon, lactose bouillon and saccharose bouillon, fermented all three of these sugars, producing about 50% of gas in the glucose and lactose and about 20% of gas in the saccharose. Litmus-milk tubes inoculated from the heart's blood did not show any apparent change at the end of twenty-four hours, but at the end of forty-eight hours presented the characteristics usually produced by this organism. Gelatin inoculated and incubated for twenty-two days, and then solidified in the ice chest showed no liquefaction.

Atypical characteristics of this organism seem to be the absence of gas production when first isolated, its inability to grow in lactose bouillon, milk and gelatin, and its very slow production of gas when inoculated into the first rabbit. While the cultures from the second rabbit seem to have overcome many of these difficulties, the organism was still atypical from its slow growth in milk, from the non-liquefaction of gelatin, and from the fact that it produced an equal amount of gas in glucose and lactose, whereas the organism described by Welch and Nuttall produced about twice as much gas in lactose bouillon as it did in glucose and saccharose bouillon.

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PUBLIC HEALTH AND THE COST OF LIVING

Much is heard nowadays on the street and in newspapers and magazines about the recent increase in the cost of living and anyone who keeps track of his household bills, or gives heed to the condition of his check-book will probably agree as to the reality of such increase. The whole question has now become so acute as to figure prominently in the political platforms of all parties, and in the pleas of candidates for public office, most of whom promise, more or less rashly, that the cost of living shall be promptly reduced, provided only they are elected. State, and even National commissions as to causes and remedies have been suggested or created, and all sorts of theories, reasonable and unreasonable, of cause and cure are under discussion.

Only rarely, however, is any reference made to the fundamental bearing of the increase in the cost of living upon the public health. And yet every hygienist and sanitarian knows that in no other relation is such increase more important. It is not yet much more than half a century since Ireland was desolated by a famine, due to the potato rot, which destroyed one of the chief food supplies of the Emerald Isle; and, even now, hardly a year goes by without great scarcity of food in India or China or some other more or less remote portion of the earth's surface. Among the poorer populations of our great cities, such as New York or London, food, even under the best conditions, is frequently very scarce, so that starvation or semi-starvation confronts hundreds.

Improved transportation and its consequent "shrinkage of the world" which is so characteristic a feature of our time, combined with the beneficent arts of food preservation,—especially canning, desiccation and cold storage,—have made seemingly impossible for the western world shortages of food amounting to famine. And yet, with the rapid increase of population, and the growth of cities, coincident with comparative neglect of agri-

culture, even the United States are beginning to diminish materially their exports of food and to require for their own people most of the food which they produce.

But any increase in the cost of living, unless accompanied by a corresponding increase in wages and employment, must inevitably result in a diminished food supply, particlarly among those least able to bear it. If the well-to-do were compelled to eat less, very likely the public health might gain thereby; but to diminish the already only barely sufficient or inadequate food supply of thousands of our poorer people, can only mean grave danger to the public health, with an increase of diseases due to malnutrition or under feeding, such as tuberculosis and other common infections, and possibly, scurvy, leprosy, and the like.

All sanitarians, therefore, should do their best to help keep down as far as possible the cost of living, and also to teach the poor and under-fed how to get the most nutriment for their money by taking advantage of proper preparation of the cheaper grades of food.

The mere matter of the grading of food, often dismissed with contempt by superficial observers who seem to assume that in America everybody can and should have the best (that is apparently, the most expensive) is one important key to the solution of the difficulty. Fortunately, the nutritiousness of foods does not depend upon their delicacy, tenderness, taste or appearance, but quite as much upon their wise selection and proper preparation by good cooking, etc. And just here the Pure Food Laws need to be administered with good sense and practical wisdom. For some foods which are not even clean may, under proper treatment by cooking, seasoning etc. yield food which is not only cheap but also safe, appetizing and nutritious.

THE REFERENDUM IN PUBLIC HEALTH

Of much interest to public health officials is the recent decision, of the voters of Los Angeles, as shown by the vote on the tuberculin test. The Health Department of that city favored requiring that milk sold in the city must come from cows which had been proven free from tuberculosis by the tuberculin test. There was much opposition and eventually the question was put to the vote of the people. The decision of the majority was against the test. A very active campaign was waged by the Health Department and the dairy interests but apparently the health officials were unable to impress sufficiently on the minds of the citizens the fact that this test is of proven efficiency and value, and that a considerable proportion of cases of tuberculosis in children are contracted through the consumption of milk from tuberculous cows.

It is difficult matter to educate a large group of voters in a short time of

the value of such a test, and the very controversy on the subject which raged in the scientific world undoubtedly gave good ammunition to the opponents of the test. Nevertheless it must be conceded that the vast majority of sanitarians now accept the fact that there is a real and considerable danger to children from milk of cows proven to be tuberculous by this test. No doubt the test is not a perfect one but for want of a better it must be adopted for the present.

Does not this action of the voters of Los Angeles point out a very serious danger and weakness in permitting questions of this kind to be decided by those who cannot be adequately informed of the pros and cons of the question in debate? We believe the precedent set in Los Angeles to be most dangerous. Successful agitators may be able so to sway public opinion that other important policies of health departments will be voted down, and if this should happen it would mark a very backward step in public health work in this country.

IMPORTANT NOTICE CONCERNING THE ANNUAL MEETINGS, WASHINGTON, SEPTEMBER 18–20

The preliminary announcement of the annual meetings of the American Public Health Association will be sent to all members in the course of a few weeks. Meanwhile it seems advisable to draw the attention of the members to the fact that there is going to be undoubtedly an unusually full attendance of the Association, and that most of the members will wait over to attend the Fifteenth International Congress on Hygiene and Demography, which meets in Washington, September 23–28. Several other organizations are to hold their meetings in Washington during the same time as those of the American Public Health Association, and consequently the hotels are going to be very crowded, and it will be difficult to obtain suitable accommodations unless reservations are made promptly. For the convenience of the members of the American Public Health Association the following information concerning hotel accommodations are here made.

WASHINGTON HOTELS.

Ardmore	$1.50 and up, American.
Atlantic	$1.00, $1.50 and $2, European.
Bancroft	$2.50 and up, American.
Bellevue	$1.50, European. $3.00, American.
Buckingham	$2.50 and up, American.
Cochran	$1.50, European. $3.50, American.
Commercial	$1.00, European.

Congress Hall, ... $3.00, American.
Continental ..... $1.50, European.
Driscoll ..... $1.00 and up, European. $2.50 and up, American.
Dewey ..... $3.50, American.
Donald ..... $2.50, American.
Fritz Reuter ..... $1.00 and up, European.
Gordon ..... $3.00, American.
Grafton ..... $3.00, American.
Hamilton ..... $2.50, American.
Harris ..... $1.00, European.
Howard ..... $1.50, European.
Johnson ..... $1.50, European.
Manhattan ..... $1.00, European.
Metropolitan ..... $2.50, American.
National ..... $1.00, European. $2.50, American.
New Ebbitt ..... $1.50, European. $2.50, American.
New Fredonia ..... $1.50 and $2.00, European.
New Willard ..... $2.50 and up, European.
Powhattan ..... $1.50 and up, European.
Raleigh ..... $2.00 and up, European.
Richmond ..... $1.50, European. $3.00, American.
Shoreham ..... $2.00 and up, European.
St. James ..... $1.00, European.
Winston ..... $1.00 and up, European.

HEADQUARTERS.

The local committee has been able to make arrangements with the New Willard Hotel, so that this place will be the official headquarters of the Association. Meetings of the General Sessions of the Association and all meetings of the five sections will be held at this hotel.

TYPHOID FEVER IN NEW YORK CITY TOGETHER WITH A DISCUSSION OF THE METHODS FOUND SERVICEABLE IN STUDYING ITS OCCURRENCE

(Continued)

CHARLES F. BOLDUAN, M. D.,

Assistant to the General Medical Officer, Department of Health of the City of New York.

FLY TRANSMISSION.

The importance of fly transmission in accounting for the occurrence of typhoid fever has been emphasized by recent writers. Jackson, in particular, has made careful statistical investigations of the parallelism existing between the greatest prevalence of flies and the occurrence of typhoid fever and other diarrhoeal diseases, and has added considerably to our knowledge concerning this mode of transmission. He adduces figures to show that the great increase in typhoid fever every fall is due to a large extent to fly infection. To be sure in large cities a goodly proportion of the cases developing at that time represents out-of-town infections. Thus in New York City approximately one-fifth of all the cases occurring are imported. It is sometimes stated that fly transmission can play only an insignificant part in cities having good sewerage systems. While it is true that sewers enormously decrease the opportunity for flies to become infected, careful inspections in city districts showing unusual prevalence of typhoid fever will often disclose the presence near-by, of vacant lots littered with garbage, rubbish, and fecal deposits. Moreover, as Jackson has pointed out for New York, the mouths of sewers discharging into a river constitute a possible source of infection, for at low tide many of these are found to be at considerable distances above the water and not only accessible to flies but actually swarming with them. It is said that a feature of fly transmission in large cities is the occurrence of the cases in little foci. Now and then the district may be found to contain "school sinks." The possibility of fly transmission must always be kept in mind in studying milk-borne outbreaks of typhoid fever apparently due to infection carried from a single milk shop. If no case of fever has previously occurred in the storekeeper's household, and if the presence of a carrier has been excluded,

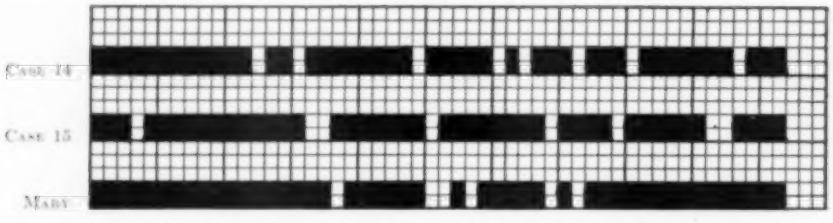
one should determine the possibility of fly infection from a near-by case. Moreover the development of secondary cases by means of fly transmission from the sick room should always be borne in mind. Here may be repeated what was said under water-borne infections. If a lot of day laborers have been working near the infected district shortly before the onsets of the cases, it is well to investigate the disposal of their excreta, and then see whether fly transmission from infected excreta caused the outbreak. Unless the chain of evidence is very strong that this was the case it is advisable to exhaust all the other possible explanations first before accepting this.

In his extensive investigations concerning the prevalence of typhoid fever in certain parts of Germany, Koch concluded that infected material was often directly carried from such fecal deposits on the shoes of persons stepping into them. Especially was this likely to be the case in regions where human excreta are used for fertilizing purposes. In this country it is very exceptional to find this use made of human excreta; but the point should be borne in mind when dealing with foreigners.

Personally, I have not yet encountered an outbreak of typhoid fever in this city positively traced to fly transmission. I do not wish to be understood as denying that this mode of infection occurs, but I do not believe that in New York City fly transmission is very common. The difficulty of demonstrating the point, however, is very great. The parallelism noted by Jackson as existing between the prevalence of flies and the incidence of typhoid fever does not necessarily indicate that flies are responsible for the usual autumnal rise in the deaths from that disease.

BACILLUS CARRIERS.

A great deal of attention is now paid, in typhoid investigations, to the subject of typhoid bacillus carriers. It is unnecessary in this article to define what is meant by such a carrier. Certain facts in connection with this subject, however, are of the greatest significance to the student of typhoid fever epidemics. The average of a large number of investigations has shown that about three per cent. of persons convalescing from typhoid fever become bacillus carriers. Regularly repeated examinations of the stools of these individuals has shown that the excretion of typhoid bacilli is not constant, not uniform. A positive stool showing only one or two typhoid colonies per plate is often followed by one showing almost a pure culture of the organism, or a negative stool is followed by a positive one. This intermittency must constantly be remembered in undertaking investigations for the discovery of such carriers. The following table exhibits regular *weekly* examinations made on three typhoid bacillus carriers at the Research Laboratory by Miss Noble:



Shaded portion indicates: Typhoid Bacilli found.

From such a chart one might be tempted to conclude that chronic bacillus carriers could usually be recognized by two consecutive stool examinations made a week apart. This, however, is erroneous. The literature contains instances where the intermissions were occasionally of considerable duration.* These cases are usually spoken of as intermittent carriers. Case 17 of the series examined by Miss Noble belongs to this category. The result of the examinations was as follows:

Stool tested after			5	months	after	typhoid	fever—	Positive.
"	"	"	6	"	"	"	"	—Negative.
"	"	"	7	"	"	"	"	—Negative.
"	"	"	8	"	"	"	"	—Negative.
"	"	"	20	"	"	"	"	—Positive.

A similar condition may account for the results obtained in a typhoid carrier discovered by us in connection with a milk-borne outbreak of typhoid fever in 1910. After finding the typhoid bacilli in the first specimen, sixteen subesquent specimens, we were informed, were sent to another laboratory and no typhoid bacilli ever found, When again examined at our laboratory, a year later, three out of four consecutive specimens showed typhoid bacilli.

When we consider that the milk supplied to the City of New York comes from over 40,000 dairy farms and that about 200,000 persons thus come into more or less direct contact with the milk, the difficulty of the problem of safeguarding the milk against infection becomes apparent. So far as typhoid infection is concerned, the chief difficulty is presented by what are known as typhoid bacillus carriers. In dealing with milk of the grade known as certified or guaranteed, which sells at retail for fifteen cents a quart and upward, probably little difficulty will be encountered in enforcing rules for the careful bacteriological examination of all persons in any way

* As much as two and even three years, in *untreated* carriers.

handling the milk, and then excluding any who are found to be typhoid carriers. With the cheaper grades of milk, and these constitute the bulk of the supply, no such scheme appears to be practicable. At the same time, before attempting to deal with this problem, it is well to know just how much of a menace to the public health these typhoid carriers constitute.

While subject to considerable variation, the incidence of typhoid fever per 100,000 of population averages, in this part of the country, from 150 to 200 cases annually. This would imply from 300 to 400 cases each year among 200,000 persons coming into contact with the milk supplied to New York City. If only two per cent. of these become chronic carriers,* we should have six to eight new carriers developed each year. We have no data whatsoever on the average time for which a carrier remains such. One of the first cases reported in the literature related to a woman who had had her typhoid infection nineteen years prior to her discovery as a carrier. I have reported a case in which the carrier had had his typhoid infection forty-six years before. He remained such until his death. Even assuming that fifteen years is the average period for which a carrier remains such, this gives us the startling total of 90 to 120 typhoid carriers now probably menacing the milk supply of this city.

Statistically, this may be tested another way. Some time ago I had occasion to study the typhoid fever incidence of a group of dairy farms from which infection was thought to have occurred. Altogether 190 dairy farms were visited, and on these the total population, including household and hired help, was 818. The total number of individuals among this number who gave a history of typhoid fever at some time in their lives was 26, and 5 others gave a history of a disease which may have been typhoid fever, but which was called either grip, or acute biliousness, or typhoid-pneumonia.

Let us say, therefore, that 190 dairies yielded typhoid histories in twenty-eight instances and that there are approximately 40,000 dairies supplying New York. If the same incidence holds good for all the dairies, we should have 210 times 28 instances, *i. e.*, 5,880 persons giving typhoid histories. Two per cent. estimated as carriers would mean 115 carriers on the dairies supplying New York.

The labor involved in collecting and examining stools for typhoid bacilli, is considerable and has led to attempts to employ Widal examinations preliminary to undertaking stool examinations. This, of course, is based on the assumption that all typhoid bacillus carriers will give a positive

* This is probably a very conservative estimate, when very careful, and oft repeated examinations are made of those convalescing from typhoid fever have been made, as high as five per cent. have been found to be carriers.

Widal reaction, an assumption which extended investigations have shown to be false.

While, perhaps, the large majority of typhoid bacillus carriers thus far studied have harbored the bacilli in their faeces, and some in both faeces and urine, a number appear to harbor them only in the urine. The latter, of course, will be overlooked if only stools are examined; and since they are really the more dangerous of the two, it follows that in searching for typhoid bacillus carriers both stools and urine should be examined. At this point attention may be called to a regulation which we have enforced for some time in dealing with typhoid fever on dairy farms or among employees of creameries. When such a person has typhoid fever, not only do we insist on rigid quarantine, but we also refuse to allow him to return to work in the dairy or creamery until after three consecutive bacteriological examinations have shown him no longer to be excreting typhoid bacilli.

SECONDARY INFECTIONS.

The immediate object of all statistical inquiries such as are here outlined, should be to secure information which will help us to prevent the occurrence of infections. It is often stated that the proportion of cases secondarily infected is probably considerably higher than ordinarily believed. Nevertheless, when we come to study the question we find that the available data concerning the circumstances surrounding the occurrence of such infections are far from complete. My personal experience leads me to believe that the proportion of secondary infections in this city is distinctly smaller than it is in the country. This is quite natural in view of the hospital facilities available to the city resident, the sewage disposal provided, and the circulars of information distributed to all the patients by the Department of Health. Some light is thrown on the cause of the secondary infections by studying their incidence on the occupation of the cases, and on the member of the household who nursed the patients, and on patients kept at home and those sent to hospitals. A frequent cause of secondary infections is the fact that the patient is nursed by the wife or mother, as the case may be, and that circumstances practically compel her also to attend to the cooking and other household duties for the rest of the family. This is well shown in the following detailed study of thirty-one families in which undoubted cases of secondary infections occurred.

Total number of families	31
" " " infections	81
" " " secondary infections	50
The nursing person secondarily infected	13 cases

Infection due to same person doing both nursing and cooking for the rest of family (19 such instances)	31 cases
An infected person continuing cooking, etc., during beginning of the illness	5 "
Infection by frequent, close contact	1 case
	50 cases

So far as our records show, about ten per cent. of the typhoid infections occurring in this city are secondary and probably to a large extent avoidable. At the present time this represents three or four hundred secondary cases annually, of which approximately ten per cent. are fatal. Public health authorities should consider the advisability of enforcing hospital treatment in all cases of typhoid fever where the patient cannot be isolated and cared for by a special nurse.

OCCUPATION.

In the preceding pages we touched upon the danger to others when typhoid fever occurs in a dairyman or an employee of a creamery, and in speaking of secondary cases mention was made of typhoid fever in its relation to housewives. Moreover, the literature contains cases similar to the well-known cook who was under our observation for several years and who left a trail of typhoid infection in the families in which she was employed. Last year we began to gather accurate data concerning the occupation of all reported cases of typhoid fever and especially as to what relation the occupation bore to the handling of food. The following table gives these data concerning 700 cases.

Total number of cases tabulated	700
Children	157 cases
Remainder	543 "
Not handling foods (including also a few in which no data were obtained)	447 "
Occupations in some way connected with the handling of food	96 "
These were distributed as follows:	
Housewives	53 cases
Waiters	13 "
Cooks (Private)	5 "
Cooks (Hotel or Restaurant)	4 "
Bartenders	4 "
Bakers	3 "
Kitchen helpers	3 "
Maids	2 "
Grocery clerk	1 case
Confectioner	1 "

Carrying out the same principle by which we now insist on negative bacteriological stool examinations before allowing dairymen and other handlers of milk to return to their occupation, it would seem, from the above table, that similar methods should be applied to typhoid fever occurring in individuals who hire out as cooks and waiters. The administrative control of these cases, to be sure, is much more difficult, but this should not deter us from dealing with the subject.

RELATION BETWEEN DATE OF ONSET AND DATE OF REPORT.

In studying the occurrence of typhoid fever in previous years it usually happens that only the dates on which the cases were reported are available, and not the dates of onset. If then we know the average time elapsing between the date of onset and date of report, this fact would enable us to plot a curve of onsets, from which, in turn, we could infer the time of infection with a fair degree of accuracy.

The average time elapsing between the date of onset and date of report is influenced by a number of different factors, and *varies considerably in different communities.* In general, the time is a little longer in the winter and spring months than in the summer and fall, owing probably to the fact that physicians are less on the lookout for the disease in the winter and spring seasons. Conversely, the cases are reported more promptly during times of epidemic outbreaks. Institutional cases, especially when occurring in groups are usually quickly recognized, and consequently reported within a short time of their onset. In cities, such as New York, where the laboratory diagnostic facilities placed at the disposal of physicians are very great and where, therefore, a large number of cases of typhoid fever come to be reported indirectly by means of positive Widal reactions on specimens sent to the municipal diagnosis laboratory, the time elapsing between onset and date of report is, undoubtedly, considerably less than in communities where such facilities are not provided or are not readily available.

In general, I find that in New York City the time between onset and date of report is about two weeks, with thirteen days as the average in the summer and fall, and fifteen days in the winter and spring. When dealing with fairly large numbers of cases, therefore, a tolerably accurate idea of the date of onset may be obtained by moving the curve of "date reported" back just two weeks.

Owing to the greater certainty, so far as diagnosis is concerned, of death returns as compared with case returns, a number of investigators have based epidemiological studies on the curve of date of death, and have then counted back an interval of a certain number of weeks in order to arrive at the time of infection. For this purpose it is necessary to know the average time elapsing, in the fatal cases, between date of onset and date of death, and

to this period add the average incubation period. From an analysis of 222 fatal cases occurring in New York in 1911, I find that the average time from date of onset to date of death is 25.4 days. Adding an incubation period of 11 days to this makes 37 days, or adding 16 days makes 42 days. In other words one should set the death curve back not over six weeks in order to arrive at a curve representing the period of infection.

EXTENT TO WHICH TYPHOID FEVER CASES ARE REPORTED IN NEW YORK CITY.

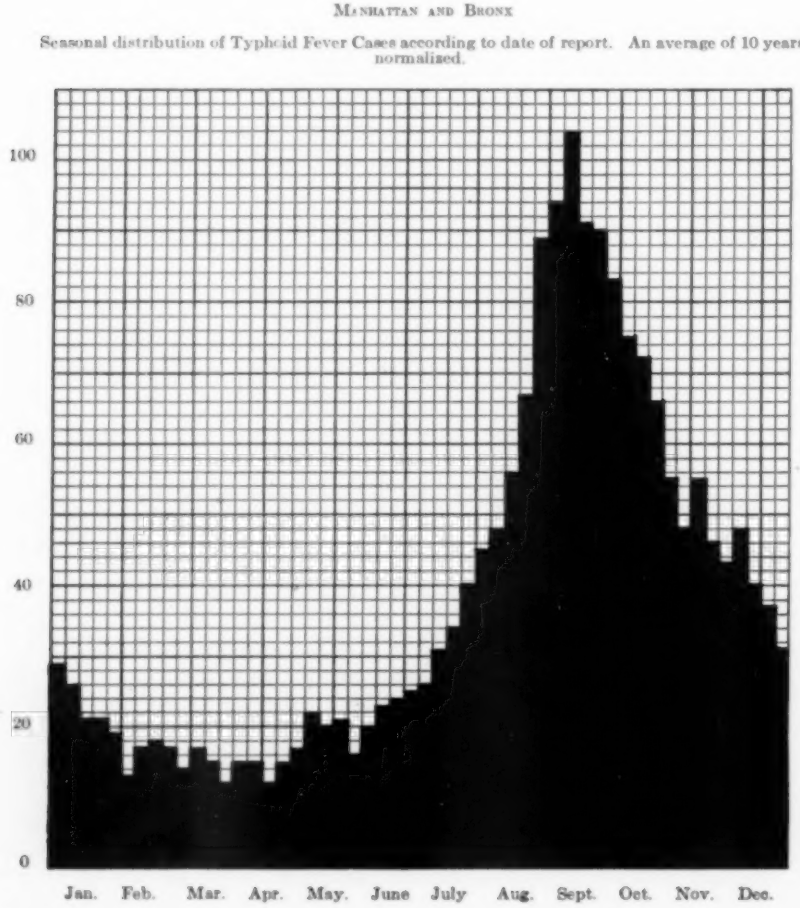
For certain purposes, it is often of advantage to base studies on the cases rather than on the deaths reported. One should remember, however, that in many instances this is not an accurate index to the number of typhoid infections actually occurring. Much depends on the completeness and readiness with which physicians report the cases coming under their care. For this reason it is often more accurate to guage the typhoid incidence by means of the reported deaths. When dealing with large numbers of cases, it is safe to say that the average case mortality will not be far from 10 to 12 per cent., and we may therefore multiply the number of reported deaths by eight to ten in order to estimate the total number of typhoid infections. By this method we are enabled to approximately determine also the completeness with which the cases are being reported to the health authorities. In this connection, the table at the end of this article is of considerable interest. It will be seen that the calculated case mortality differs considerably in the different boroughs of the city. At least that is what the figures show. As a matter of fact, however, the figures really indicate that the cases are being very poorly reported from certain of the boroughs. Applying the rule we have just laid down, namely that the average case mortality is probably 10 to 12 per cent., it will be seen that the number of unreported cases in the entire city of New York is still considerable. It is impossible at present, to say what proportion of these represent either mild or typical cases whose ready diagnosis is hardly to be expected.

SEASONAL DISTRIBUTION OF TYPHOID FEVER IN NEW YORK CITY.

I have already called attention to the average length of time which elapses in this city between the date of onset and the date on which a case of typhoid fever is reported and also between the date of onset and date of death. I called attention there to the fact that the interval between the onset and date of report will vary considerably in different communities. This variation, however, does not apply to the interval between onset and death and for this reason comparative studies of the seasonal distribution of typhoid fever in different communities should be based by preference on the deaths reported rather than on the cases reported. The latter, to be sure, may also be used provided one can accurately and conveniently learn

the date of onset. Practically, however, such comparative statistics based on date of onset are almost impossible to obtain.

The seasonal distribution of typhoid fever in this city is shown in the following curves. It will be seen that the curve is at its ebb in the early spring months and that it rises rather sharply in the fall. I have introduced the curve for 1907 in order to bring out the abnormal rise produced by

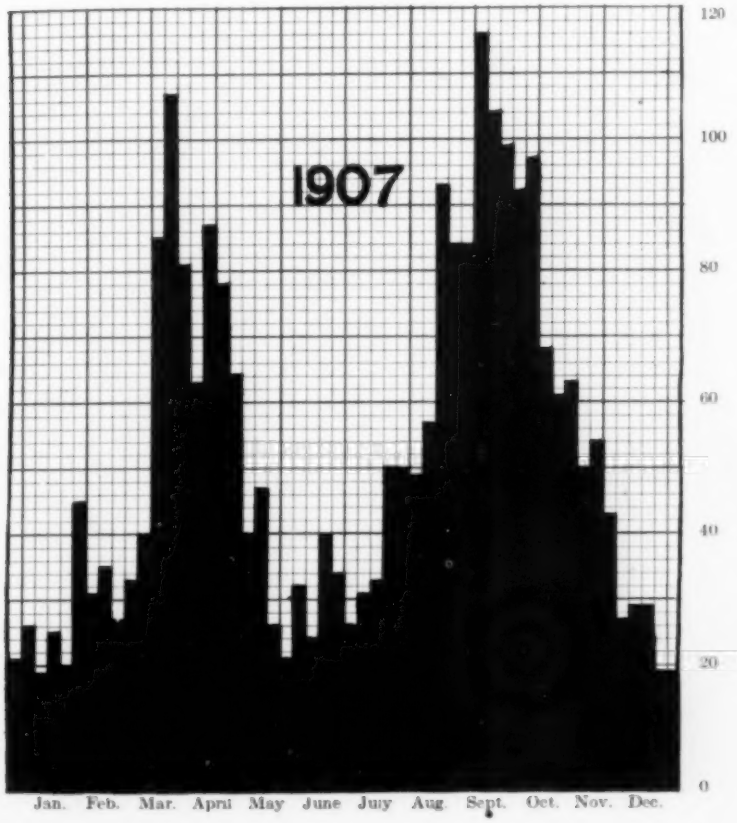

Manhattan and Bronx
Seasonal distribution of Typhoid Fever Cases according to date of report. An average of 10 years normalized.
100
80
60
40
20
0
Jan. Feb. Mar. Apr. May. June July Aug. Sept. Oct. Nov. Dec.

a rather extensive water-borne outbreak in the spring of that year. These curves are all based on the date of the cases reported. In order to arrive at the date of onset the curve must be moved back two weeks. In making comparisons with other cities, it will be best to use the death curve of these cities and to move the death curve back about four weeks in order to obtain a date of onset curve.

COLLECTION AND EXAMINATION OF SPECIMENS.

Specimens of stool are collected in a clean sputum bottle, which need not be sterile. A small piece of fecal material, about the size of a chestnut, is sufficient, and it is well not to take the first hard portion passed. The bottle should be securely corked, and labeled with the patient's name and date of collection. If the patient collects the specimen, it is important to

Cases of Typhoid Fever in the Boroughs of Manhattan and The Bronx, as reported week by week.



instruct him not to add any disinfectant to the specimen. Such instructions are especially important if a trained nurse is in attendance and collects the specimen, as the disinfection of suspected typhoid stools is almost a routine matter with them.

Specimens of urine should be collected in sterile bottles holding about eight ounces. The bottle should be only partly filled to allow of expansion with change of temperature. The specimen should be kept moderately

TYPHOID FEVER IN CERTAIN LARGE CITIES OF THE WORLD

Deaths per 100,000 Population

Year.	Berlin	Hamburg	Vienna	Paris	London	New York	Boston	Chicago	Washington, D. C.	Philadelphia
1890	9.1	26.2	9.4	28.2	14.8	21.8	34.6	91.6		63.6
1891	10.4	26.2	6.2	22.7	13.0	22.8	33.6	173.8		63.9
1892	8.3	34.5	8.3	28.0	11.4	21.9	29.3	124.1		40.3
1893	9.4	17.6	8.0	22.8	16.7	21.7	31.0	53.5		40.9
1894	4.2	6.0	5.1	27.4	14.6	18.0	29.0	37.3		32.5
1895	5.7	9.2	5.8	10.6	14.0	17.1	32.5	37.9		40.3
1896	4.7	5.4	5.2	10.1	13.4	14.1*	31.4	52.6		33.8
1897	4.0	7.1	5.4	9.7	13.3	15.4	32.7	29.3		33.2
1898	4.3	4.6	6.8	9.9	13.0	20.7	34.0	40.8	60.6	51.5
1899	4.1	3.7	4.1	29.0	17.8	16.3	29.7	27.2	60.7	74.9
1900	5.8	3.4	8.3	34.6	16.5	20.8	25.5	19.8	77.8	34.7
1901	4.7		4.5	15.8	12.1	20.6	25.0	29.0	61.4	33.6
1902	2.7		3.0	15.7	12.0	20.3	24.2	44.1	79.1	43.6
1903	3.2	4.	3.9	13.7	8.6	17.1	20.5	31.4	48.8	69.4
1904	3.7		3.4	15.4	2.6	16.8	22.9	19.6	47.0	52.8
1905	5.3		4.4	11.2	5.2	16.0	19.6	16.9	48.2	47.6
1906	4.6	4.	4.9	13.5	5.8	15.4	19.9	18.5	52.3	72.4
1907	3.8	3.	2.6	10.0	4.3	17.2	10.2	18.4	34.6	59.3
1908	3.6	4.	4.3	8.3	5.1	12.0	24.7	16.1	36.5	34.8
1909	4.4	3.	3.0	9.4	3.	12.2	13.9	12.6	33.2	21.1
1910	3.6	2.5	4.1	6.7	4.	11.6	11.6	13.7	23.2	17.4
1911						10.9				14.1

*Greater New York.

TYPHOID FEVER IN NEW YORK CITY

Cases, Deaths and Death Rate per 100,000 in Each Borough, 1900–1911

Year	Greater City			Borough of Manhattan			Borough of the Bronx			Borough of Brooklyn			Borough of Queens			Borough of Richmond		
	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate	Cases	Deaths	Death Rate
1900	2,658	718	20.8	1,658	342	17.1	101	30	17.1	697	301	24.0	117	32	24.0	85	13	18.8
1901	2,748	727	20.6	1,860	380	20.3	85	32	14.5	644	272	22.5	81	27	16.6	78	16	23.2
1902	3,871	765	20.3	2,524	366	18.7	105	34	14.0	961	322	25.8	202	32	18.5	79	11	15.5
1903	3,671	653	17.1	2,342	317	15.7	120	33	12.3	1,003	267	20.6	119	22	12.0	87	14	19.2
1904	3,412	661	16.8	1,916	277	13.8	220	32	10.9	1,050	303	22.7	133	34	17.6	93	15	20.0
1905	4,326	649	16.0	1,867	273	12.9	327	37	12.0	1,913	297	21.6	146	31	15.1	73	11	14.4
1906	3,467	639	15.4	1,713	325	15.1	301	44	15.2	1,215	230	16.4	166	30	14.3	72	10	13.4
1907	4,426	740	17.0	2,387	372	16.9	384	48	15.0	1,341	271	18.0	171	36	16.0	143	13	19.0
1908	3,058	536	12.0	1,455	254	11.3	333	37	11.3	999	206	13.8	200	32	13.7	71	7	9.3
1909	3,499	564	12.3	1,556	262	11.4	459	63	18.0	1,131	119	12.4	234	37	15.1	119	11	14.1
1910	3,582	558	11.8	1,884	269	11.5	289	41	11.0	1,113	198	12.4	215	39	15.1	81	11	13.6
1911	3,450	545	11.1	1,733	257	11.1	402	38	9.0	1,104	211	12.3	171	28	9.0	40	11	12.3
Total	42,168	7,755		22,895	3,694		3,126	469		13,171	3,069		1,955	380		1,021	143	
		Case fatality 18.3%.			Case fatality 16.1%.			Case fatality 15.0%.			Case fatality 23.3%.			Case fatality 19.4%.			Case fatality 14.0%.	

NOTE.—In connection with the calculated case fatalities it is important to remember what was said in discussing the Extent to which Typhoid Fever Cases are Reported in New York.

cool, but not frozen, and together with the specimen of stool should be promptly sent to the laboratory.

At the laboratory a loopful of faeces is broken up and mixed thoroughly in a tube containing about five or six c.c. sterile liver broth (Jackson) and a loopful from this dilution is streaked over a Conradi-Drigalski plate. The typhoid-like colonies which develop at 37C. are then fished into broth and incubated for twenty-four hours. These fishings are then tested for their agglutination characteristics with an antityphoid horse serum.

The liver broth culture is incubated for three days, which serves as an enrichment period, for this medium favors the growth of typhoid bacillus at the expense of certain other intestinal bacteria. At the end of this time, streak cultures are made of Conradi-Drigalski plates as has just been described, and are fished and tested in the same way.

To make certain that an organism agglutinating with typhoid horse serum is really typhoid, the degree of agglutination must be carefully determined and the fermentation characteristics of the bacillus compared with those of a typical typhoid bacillus. Absorption tests may also be made but, except in rare cases, will not be needed.

The examination of the urine is carried out in exactly the same way.

In the preparation of the study here presented, the writer has drawn generously on the work of others in the Department of Health, especially on that of Dr. William H. Park, Director, and W. Carey Noble, Bacteriologist of the Research Laboratory, Dr. John S. Billings, Chief, and Dr. William T. Klein, Medical Inspector in the Division of Communicable Diseases, and Messrs. Kilbourne, Sturgis, Salte, Thompson and De Wolfe of the Milk Division. To all who have thus aided him, the writer here expresses his thanks and appreciation.

DRIED VACCINE

W. F. Elgin, M. D., and J. Gilbert George,
H. L. Mulford Laboratory, Glendolden, Pa.

Read before the Laboratory Section, American Public Health Association, Havana, Cuba, 1911

At a meeting of this Association in 1905, we read a paper, discussing among other Vaccine Problems the "Forms of Preparing Vaccine" in which some experiments were cited, intending to prove the relative keeping qualities of the dried virus under ordinary heat as compared with the glycerinated form. This work was suggested by a paper from Carini of Berne, explaining extraordinary resistance of dried virus to heat. Our method of drying virus at that time was by driving a blast of sterile air over the virus until the water was extracted. Tests appear to indicate that the virus thus dried was inferior to the glycerinated form, and the matter was dropped.

About a year ago, inquiries began to come in from various points in tropics regarding dried vaccine. It was therefore determined to again take up the investigation, drying the virus in vacuum over sulphuric acid.

This method in detail was as follows:

As soon as possible after its removal from the animal, the virus was placed in an appropriate container inside a large Fruhling & Schultz Desiccating jar with sulphuric acid in the bottom. The desiccator was placed in a cool place near an open window, and a vacuum of approximately twenty-eight inches was maintained for two or three days. After drying the virus, it was removed and ground in a mortar; then passed through a sterile wire sieve (32 mesh to the inch).

In accordance with this method, on December 17th, 1910, we dried 102.7 grms. of virus from Calf No. 121 "A." After drying, the virus was transferred to small tubes containing about 1–10 gram each, hermetically sealed under a vacuum of approximately twenty-eight inches. These vials were exposed to varying temperatures, such as 37° C., 20° C. room temperature (on Laboratory table) and Ice Chest (Approximately 10° C.) The bulk of the material was transferred to cold storage at a temperature of about 8° C. On January 6th, 1911, this material was tested on Calf No. 4 "B," results showed no especial advantage of the dry over the glycerinated form.

A number of other experiments were made along this line, varying only slightly in detail, but the virus proved of little value for the purpose intended.

Finally the Technique was changed, so as to dry the material quicker, and was as follows:—

On March 31st, 1911, Twenty-five grams of virus were taken from Calf No. 116 "B," placed on a desiccator with sulphuric acid in bottom and tray of sulphuric acid above the virus. The air was exhausted to about twenty-eight inches. The jar being exposed to ordinary out-door temperature, at an open window. At the end of twenty-two hours, the material was found to be dry, was ground in a mortar, and put through a sieve and put up in vials as before noted.

Tests on this showed a decided improvement, although not so great as we anticipated.

Twenty hours in Temperature 37° C. showed a large number of vesicles of a better type than those noted from the same calf put up in the glycerinated form, and tested in the same way.

During the summer, inquiries in reference to this product continued to come in; and it was decided to continue our investigations in the light of research made by Drs. Harris and Shackell in reference to *"The Effect of Vacuum Desiccation on the Virus of Rabies," and reported to this Association at its last meeting. Dr. Harris seems to believe that the infectivity of the rabies cord, largely depended upon the amount of water abstracted, and suggested the importance of keeping the tissue frozen while drying.

Bearing these points in mind, our method was again altered, so as to pack the desiccator in ice and salt during the process of drying. The material was immediately removed from the desiccator when dry, sieved, and crushed in a mortar, and put up in air exhausted tubes as before.

This general idea was carried out with varying details during the past fall and with poor success. For some reasons, just why we do not know, the virus made and handled in the heat of the summer and early fall, seemed to be of less value and would not stand the various manipulations in the same manner as virus made in the winter; so that our results were too indefinite to be worthy of report.

In November, however, we took some virus which had been placed in Cold Storage last winter, and subjected it to the conditions as to the temperatures noted in a previous experiment, as follows:—

November 8th, 1911 No. 128 "A" was exposed to the following temperatures: 37° C., 20° C., and Ice Chest (approximately 12° C.)

On November 21st. Samples from each of the temperatures were vaccinated on Calf No. 114 "C." Inspection on November 27th, showed equally good takes for all these temperatures. Similar results were noted on tests from other viruses treated in a like manner. Though the results were not always constant we are encouraged to continue our investigations in the hope that we may attain results similar to those reported by †M. Achalme and Dr. Phisalix from this form of virus in tropical countries.

* Journal of Infectious Diseases; Vol. 8, No. 1, January, 1911, pp. 47–49.
† Lancet—London, October 7th, 1911.

MINUTES OF THE THIRTY-NINTH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

(*Concluded.*)

MINUTES OF THE HAVANA MEETING.

Third Day.

HAVANA, CUBA, December 7, 1912.

The meeting was called to order in the Ateneo, at ten o'clock, a. m., December 7, 1911, by the President.

The reading of the minutes of the preceding meeting was by unanimous consent dispensed with.

A report was received from the Laboratory Section, announcing the election of officers as follows:

Chairman, Dr. John F. Anderson,

Vice-Chairman, Prof. Fred P. Gorham,

Recorder, Dr. Allen W. Freeman,

Secretary, Mr. Burt R. Rickards,

Elective members of Council: Dr. John A. Amyot, Prof. Edward Bartow, Dr. D. L. Harris, Dr. A. Parker Hitchens, and Mr. James O. Jordan.

Representative on Advisory Council, Dr. John A. Amyot.

A report was received from the Section on Vital Statistics, announcing the election of officers, as follows:

Chairman, Dr. Wilmer R. Batt,

Vice Chairman, Dr. Jorge LeRoy,

Secretary, Dr. David N. South,

Elective members of Section Council: Dr. Peter H. Bryce, Dr. William H. Guilfoy, Dr. Martin O. Heckard, Dr. Gregorio Mendizabel, and Dr. William F. Snow.

Honorary and Advisory member of Section Council, Dr. Cressy L. Wilbur;

Representative on Advisory Council, Dr. William H. Guilfoy.

The Section of Municipal Health Officers reported the election of the following officers:

Chairman, Dr. Joseph S. Neff,

Vice-Chairman, Dr. James Roberts,

Recorder, Dr. Alton S. Fell,

Elective members of Section Council: Dr. Julio Arteaga, Dr. Francis

E. Curtis, Dr. Alexander J. Douglas, Dr. Robert Nelson, and Dr. William F. Snow.

Representative on Advisory Council, Dr. Francis E. Fronczak.

The Secretary, Dr. Ernest C. Levy, having been elected in 1910, to serve two years, holds over.

The Executive Committee reported that it had carefully considered the pending amendment to Article III, Section 6, of the Constitution, to wit, the adding of the words "and to such others as the Executive Committee may recommend as presenting satisfactory qualifications in lieu of the three years' service specified above," and had considered also the amendment proposed to said amendment, which would have the effect of abolishing the existing distinction between active membership and associate membership. The Executive Committee recommended that the proposed amendment to the constitution be adopted in the form in which it was originally submitted.

Dr. Bryce moved the adoption of the report of the Executive Committee. Carried unanimously.

The Executive Committee reported that it had considered the proposed amendment to Chapter 10 of the by-laws, offered by Dr. Guion yesterday and referred to the Executive Committee, the purpose of which was to enable the Committee of Seven to make such amendments to the by-laws as may be necessary to make them conform to the requirements of the postal laws and regulations of the United States. The Executive Committee found, however, that the Committee of Seven is already vested with such authority, and the Executive Committee therefore recommended that the amendment referred to be laid on the table.

Dr. Robert W. Bell moved the adoption of the report of the Executive Committee. Carried unanimously.

With respect to the adminstration of the business affairs of the Association, referred to the Executive Committee as a part of the report of the Secretary, and with reference to the report of the Committee on Journal, which was referred to the same committee, the Executive Committee reported that it had appointed a sub-committee to consider these matters and that that sub-committee had submitted a report, as follows; which was duly approved by the Executive Committee:

Your sub-committee has considered the various methods possible for conducting the work of the Association and publishing the transactions and keeping up a permanent journal, as follows:

(1) Having a secretary, assisted by a committee, publish the transactions in a volume as was formerly done.

(2) Arranging with some existing journal to print the transactions as prepared and edited by the Publication Committee, as a part of that journal, the American Public Health Association paying for such service.

(3) Appointing from the Association some person at an adequate salary to be secretary and treasurer, and editor and business manager of the Journal, utilizing such trust funds as are necessary, up to a fixed sum approved by the Committee of Seven.

(4) Arranging, if possible, with the secretary and editor of some existing journal dealing with some phase of public health work, who is a member of the Association, to be secretary and treasurer of the Association, and publisher and business manager of the Journal, paying him a partial salary and for office assistance, the person so appointed to guarantee such part of the income from advertising and other sources of revenue as may be agreed upon by the Committee of Seven on behalf of the Association.

After fully considering the various proposed methods, your sub-committee is of opinion that the fourth plan will best meet the present needs of the Association, keeping in view both the present financial ability of the Association and the aims which the Association has for several years past been pursuing, for the purpose of developing the efficiency of the Association.

As this method, if adopted, will require some time to put into effect, your sub-committee reports that the present Editor of the Journal of the Association has agreed to take charge of the next issue of the Journal and that the Secretary has agreed to continue to act in his present capacity, in order that the Committee on Journal may have time to make, if possible, arrangements along the lines laid down in this report.

The Executive Committee recommended therefore the adoption of the following resolution: "Resolved that the report of the special sub-committee of the Executive Committee, duly approved by the Executive Committee, be adopted and that this report be referred to the Committee on Journal, with instructions to carry out as far as possible the recommendations contained in plan four, proposed by the sub-committee, and that should the Committtee on Journal find it impossible to carry these recommendations into effect, said committee be authorized to make such other business arrangements for the continuation of the Journal during the coming year as may be necessary and be authorized to draw upon the trust funds of the Association up to such amount as the Committee of Seven may deem necessary."

Dr. Bryce moved that the resolution submitted by the Executive Committee be adopted. Carried.

A report was received from the Committee on Membership, duly approved by the Executive Committee, showing the eligibility of each of the applicants named below for election of the class of membership specified.

December 7, 1911.

ACTIVE.

NAME	ADDRESS
Agramonte, Dr. Eugenio S.	Havana, Cuba.
Dresslar, F. B., Ph. D.	Bureau of Education, Washington, D. C.
Bisbe, Jose, M. D.	Santiago, Cuba.
Cartaya, Jose, M. D.	Havana, Cuba.
Castro, Raimendo, M. D.	Havana, Cuba.
Croston, John F., M. D.	83 Emerson street, Haverhill, Mass.
Cueto, Antonio, M. D.	Havana, Cuba.
Jacobson, Joaquin L., M. D.	Havana, Cuba.
Poling, James A., M. D.	Old Colony Building, Freeport, Ill.
Ponce de Leon, Nestor J., M. D.	Havana, Cuba.
Smith, R. Morton, M. D.	Riverpoint, R. I.

Dr. Cole moved that the Secretary be authorized and directed to cast the ballot of the Association for the applicants named. Carried.

The ballot having been cast by the Secretary, as directed, the applicants named were declared duly elected.

Dr. Woodward moved that the Committee on Journal consider the feasibility of publishing in eleven of the monthly issues of the Journal, the proceedings of the Association in English and publishing in the twelfth issue a summary of the proceedings in Spanish. Carried.

Dr. Levy offered the following amendment to Article V, Section 8 of the Constitution:

Add to the first paragraph, the following: "Members of the Advisory Council representing States, provinces, territories, or districts shall be selected by the active members of the Association of each State, province, territory, or district present at each meeting, and their selection shall be reported in writing to the Secretary. In event of the failure of any such delegation so to report, the Executive Committee shall nominate the representatives of such jurisdiction on the Advisory Council or authorize the President to do so."

The President stated that under the constitution this amendment would lie over until the next annual convention.

Dr. Stokes offered the following resolution from the Laboratory Section:

"Resolved, that the Council of the Laboratory Section recommends urgently that the report on Standard Methods of Water and Sewage Analysis be published as early as possible, owing to the fact that orders amounting to about $150.00 have already been received by the editor."

By unanimous consent this resolution was referred to the Executive Committee.

Papers were then read as follows:

Recent contributions to our knowledge concerning infantile paralysis, by Dr. Mark W. Richardson, Secretary, Massachusetts State Board of Health. Discussed by Drs. Anderson, Siemons, Dowling, Guiteras, Bell, and Roberts.

Urea as a sign in yellow fever, by Dr. F. Villuendas, Inspector General of Sanitation, Havana, Cuba. Discussed by Dr. Guiteras.

The North Carolina campaign against hookworm disease, by Dr. John A. Ferrell, Assistant Secretary for Hookworm Disease, North Carolina State Board of Health. Discussed by Drs. Freeman, Claude A. Smith, Kean, Snow, and Guiteras.

The Conservation of food products by refrigeration, in its hygienic and economic aspects, by Dr. Peter H. Bryce, Chief Medical Officer, Department of the Interior, Canada. Discussed by Drs. Snow, Dowling, Rankin, and James Roberts.

Mr. Frederic D. Bell offered the following resolution: "Resolved, that the question of refrigeration of food products, with particular reference to its wholesomeness, and its effect on the public health, be referred to a committee of this Association, to be appointed by the Executive Committee, with instructions to report at the next annual meeting of this Association." This resolution was referred to the Executive Committee.

Dr. Rankin offered the following resolution: "Resolved, that the Executive Committee be requested to present for approval and adoption at the meeting of the Association to be held on the 8th instant, a resolution requesting the American Association of Medical Colleges to urge upon all medical colleges belonging to that organization the importance of introducing the study of medical sociology into the curriculum." Carried.

The reading of papers was then continued, as follows:

On the milk problem, by Dr. Ernesto Aragon, Medical Inspector, Havana, Cuba, discussed by Dr. Guiteras.

A brief history of pellagra in South Carolina, by Dr. James A. Hayne, Secretary, South Carolina Board of Health. Read by title.

Tuberculosis and Quarantine, by Dr. A. G. Dominguez, Third Health Officer of the Port, Havana, Cuba. Discussed by Dr. Bryce.

Dr. Claude A. Smith moved that a Committee be appointed to consider tuberculosis in its relation to travel and quarantine. Referred to the Executive Committee.

The meeting then adjourned.

ROBERT M. SIMPSON,
President.

WM. C. WOODWARD,
Secretary.

MINUTES OF THE HAVANA MEETING.

Fourth Day.

Havana, Cuba.

The meeting was called to order in the Ateneo, at ten o'clock, a. m., December 8, 1911, by the President.

Dr. Guiteras moved that the reading of the minutes of the preceding meeting be dispensed with. Carried.

The Executive Committee reported that it had considered the resolution concerning the teaching of medical sociology, offered yesterday by Dr. Rankin and referred to the Executive Committee, and that the Executive Committee recommended the adoption of the following resolution:

"Resolved, that the American Public Health Association urges upon all medical colleges the importance of the study of diseases and deformity not only in their relations to the individual but also in their broader relations, bearing upon the morality, happiness, and efficiency of the race. The Association recommends that the study of medicine in these aspects be made a part of the curriculum in every medical college and that the duties of physicians with respect thereto be duly impressed on the students of medicine prior to graduation."

Dr. Wilbur moved that the report of the Executive Committee be adopted. Carried.

The Executive Committee reported that it had considered the resolution referring to tuberculosis in its relation to travel and quarantine, offered yesterday by Dr. Smith, and referred to the Executive Committee, and that the Executive Committee recommended the adoption of the following resolution:

"Resolved, that the President be authorized to appoint a committee of five or more members to consider methods for the prevention of the spread of tuberculosis in public conveyances, particularly with reference to railways and steamboats, and the necessity for taking precautions with respect to passengers suffering from communicable diseases."

Dr. Dowling moved that the report of the Executive Committee be adopted. Carried.

The Executive Committee recommended the adoption of the following resolution:

Resolved, that the President be instructed to appoint a committee on the supervision and control of milk supplies.

Col. Gorgas moved that the report of the Executive Committee be adopted. Carried.

The Executive Committee reported that it recommended the adoption of the following resolution:

"Resolved, that the President be authorized to appoint a committee of three or more members on the conservation of infant life."

Dr. Wilbur moved that the report of the Executive Committee be adopted. Carried.

The Executive Committee recommended the adoption of the following resolution:

"Resolved, that the committees authorized at the last preceding meeting of the Association and not specifically discharged at this meeting be continued, and that the President be authorized to appoint such other committees as to him may seem proper."

Col. Gorgas moved that the report of the Executive Committee be adopted. Carried.

The Executive Committee recommended the adoption of the following resolution:

"Resolved, that the American Public Health Association reiterate the judgment previously expressed to the effect that the importance of the health of the people is sufficient to justify and make necessary the creation of a federal department or ministry of health in each of the countries represented in this Association not now having such a department or ministry."

Col. Gorgas moved the adoption of this resolution. Carried.

The Executive Committee reported that Drs. Batt, Bryce, Holton, and Swarts had been elected by the Executive Committee to serve on the Committee of Seven during the ensuing year.

The report of the Committee on Membership, duly approved by the Executive Committee, was received, showing the eligibility of the applicants named below to the classes specified.

ACTIVE.

NAME	ADDRESS
Biosco, Luis, M. D.	Havana, Cuba.
Blanck, Frederick C.	2141 Linden avenue, Baltimore, Md.
Espin, Jose M., M. D.	Santiago, Cuba.
Figueras, Jesus A., M. D.	Havana, Cuba.
Rodriquez, Eduardo F., M. D.	Saquamla Grande, Santa Clara, Cuba.
White, Joseph H., M. D.	P. H. &. M. H. Service, Wash. D. C.

By unanimous consent, the Secretary was authorized to cast the ballot of the Association for these applicants, and the ballot having been cast, the applicants named were declared duly elected.

The Secretary reported that through his oversight the resolution offered yesterday by Dr. Bell, providing for the appointment of a committee to report at the next annual meeting concerning the refrigeration of food products with particular reference to its wholesomeness and its effect on the public health, had not been submitted to the Executive Committee

for action. Dr. Woodward moved, in view of the fact that the Executive Committee will not meet again before the adjournment of this convention, that this resolution be recalled from the Executive Committee and that the resolution itself be adopted. Carried.

Reports of the Committee on the Revision of Section constitutions and from the Committee on Cooperation with other National Health Organizations were called for, but no reports were received.

The Advisory Council, through its Chairman, Dr. Juan Guiteras, submitted the following report:

REPORT OF ADVISORY COUNCIL.

The Advisory Council met on December 7, 1911, in the Ateneo, and was called to order by the Secretary of the Association. Upon roll call, representatives responded as follows:

UNITED STATES.

Army, medical department, Col. Jefferson R. Kean, Navy, bureau of medicine and surgery, Dr. William H. Short; public health and marine hospital service, Dr. John F. Anderson; bureau of the census, Dr. Cressy L. Wilbur; bureau of animal industry, Dr. Charles N. McBryde; Alabama, Dr. Robert Nelson; California, Dr. William F. Snow; Connecticut, Dr. Joseph H. Townsend; Florida, Dr. Joseph Y. Porter; Georgia, Dr. John P. Kennedy; Illinois, Prof. Edward Bartow,; Indiana, Dr. John R. Hicks; Louisiana, Dr. Oscar Dowling; Maryland, Dr. Wm. Royal Stokes; Massachusetts, Mr. J. O. Jordan; Michigan, Dr. Clyde C. Slemons; Minnesota, Dr. Robert H. Mullin; Missouri, Dr. W. S. Wheeler; Montana, Dr. T. D. Tuttle; New Jersey, Mr. Wm. H. Chew; New York, Mr. Alec H. Seymour; North Carolina, Dr. Watson S. Rankin; North Dakota, Dr. Gustav A. Ruediger; Ohio, Dr. Frank Warner; Pennsylvania, Dr. Wilmer R. Batt; Rhode Island, Dr. Gardner T. Swarts; South Carolina, Dr. Wm. A. Boyd; Texas, Mr. Robert P. Babcock; Vermont, Dr. Henry D. Holton; Virginia, Dr. Allen W. Freeman; Wisconsin, Dr. C. A. Harper; District of Columbia, Dr. Joseph J. Kinyoun.

CANADA.

Immigration Service, Dr. Peter H. Bryce; Saskatchewan, Dr. Wm. J. McKay; Ontario, Dr. Robert W. Bell; Manitoba, Mr. E. M. Wood.

MEXICO.

Superior Board of Health, Dr. Gregorie Mendizabel; Hidalgo, Dr. Javier Hoyo; Puebla, Dr. Manuel Vergara; Vera Cruz, Dr. Manuel Garcia.

CUBA.

Public Health Service, Dr. Juan Guiteras; Pinar del Rio, Dr. Julio F. Arteaga; Havana, Dr. Federico Torralbas; Matanzas, Dr. Gabriel Custodio; Santiago de Cuba, Dr. Espin.

SECTIONS.

Laboratory, Dr. J. A. Amyot, Vital Statistics, Dr. W. H. Guilfoy; Municipal Health Officer, Dr. F. E. Fronczak.

The Council then organized by the election of Dr. Juan Guiteras as Chairman, and Dr. W. R. Batt, as Secretary.

Upon ballot, the Council nominated the members named below, each for the office stated immediately preceding his name:

For President, Dr. John N. Hurty.

For First Vice President, Dr. Federico Torralbas.

For Second Vice President, Dr. Alexander J. Douglas.

For Third Vice President, Dr. Carlos M. Garcia.

For Treasurer, for two years, Dr. Frank W. Wright.

For Executive Committee, each to serve two years, Dr. Allen W. Freeman, Dr. Joseph J. Kinyoun, and Dr. Joseph H. Townsend.

Invitations to meet in 1912 in each of the places named below were received:

Asheville, North Carolina
Atlantic City, N. J.
Chicago, Illinois
Niagara Falls, N. Y.
Philadelphia, Pa.
Washington, D. C.
Kansas City, Mo.
Rochester, N. Y.
San Francisco, Cal.

Upon ballot, the Council voted to recommend that the invitation of Washington, D. C. be accepted.

The Council by ballot nominated for honorary membership, Senator Robert L. Owen, of Oklahoma, U. S. A.

There being no further business, the Council then adjourned.

Juan Guiteras, Chairman.
Wilmer R. Batt, Secretary.

Dr. Dowling moved that the report of the Advisory Council be adopted. Carried.

Dr. Bryce moved that the Secretary cast the ballot of the Association for the officers named in the report of the Advisory Council and for the place of meeting recommended therein. Carried unanimously.

The Secretary having cast the ballot as directed, the officers named in the report of the Advisory Council were declared elected and the place of meeting duly adopted.

Dr. Bryce moved that it be suggested to the President that he appoint a committee on exhibit, to act on behalf of the Association in connection with the proposed exhibit that is to be held as a part of the International Congress on Hygiene and Demography. Carried.

Dr. Dowling offered the following amendment to the constitution:

"Amend Article IV, by striking out the last sentence of section 4, "The Secretary shall receive an honorarium of $400, annually during his term of office," and the last sentence in section 5, "The Treasurer shall receive an honorarium of $200 annually during his term of office," and insert in lieu thereof respectively, the sentence, "The Secretary shall receive an honorarium plus actual expenses incurred on account of attendance on the annual meeting, said honorarium to be arranged for by the Executive Committee," and the sentence, "The Treasurer shall receive an honorarium, said honorarium to be fixed by the Executive Committee."

Dr. Bryce gave notice of the following amendments to the Constitution. To arrange the committees so that the Committee on Journal and the Committee on Publication will be combined. To provide for the abolition of associate membership, and to make the constitution and by-laws conform to the conditions that will exist if associate membership be abolished.

Under the constitution these amendments and notices of amendments must lie over one year.

Dr. Dowling moved that the Executive Committee be requested to provide for the reimbursement of the Secretary for traveling expenses incident to the Secretary's attendance at the Havana meeting. Carried.

Mr Jordan moved that the Executive Committee be requested to provide for the reimbursement of the Treasurer for expenses incident to the Treasurer's attendance at the Havana meeting. Carried.

The report of the Committee on Necrology was submitted by the Secretary, on behalf of the Chairman of the Committee, Dr. Holton, who was absent.

Dr. Bryce moved that the Secretary of the Association be instructed to send a suitable expression of sympathy to the members of the families of the deceased. Carried.

A letter was received from Mr. Nathan Straus relative to pasteurization of the milk supply as a preventive of disease.

A letter was received from Dr. Liceaga, expressing his regret because of his inability to be present.

Dr. John S. Fulton, Secretary-General, International Congress on Hygiene and Demography, was then given the floor and urged the active support of the Association in the work of the Congress.

Papers were then read as follows:

Methods of sludge disposal, by Mr. Rudolph Hering, New York, N. Y.

Disposal of refuse, by Dr. Eugenio S. Agramonte, Havana, Cuba. Read by title.

House to house inspection, by Dr. Federico Torralbas, Chief of Sanitary Inspection, Havana, Cuba. Read by title.

Sanitary inspection of the Canal Zone, by Dr. A. J. Orenstein Assistant, Chief Sanitary Inspector, Isthmian Canal Zone, Ancon, C. Z. Read by title.

The relation of infant mortality to the cost of living, by Drs. William C. Woodward and John L. Norris, Health Department, Washington, D. C. Discussed by Drs. Dresslar and Warner.

How the Confederate Army was vaccinated, by Dr. C. W. P. Brock, Chief Surgeon, Chesapeake and Ohio Railway, Richmond, Virginia. Read by Dr. Levy, in the absence of Dr. Brock. Discussed by Dr. Wheeler.

History of the adoption on the American Continent of Bertillon's nomenclature, now international, of causes of deaths and diseases, by Dr. Jesus E. Monjaras, Secretary General, Superior Board of Health, Mexico. Read by title.

A few hints on vital statistics, by Dr. Jorge Le Roy, Chief Statistician, Department of Sanitation and Charities, Cuba.

The tuberculosis league of Havana, by Dr. J. N. Jacobson. Read by title.

Ocular hygiene, by Dr. Juan Santos Fernandez. Read by title.

A contribution to the study of beri-beri, by Dr. M. J. Lebredo, Director of Research Laboratory, Havana, Cuba. Read by title.

Hygiene of the new born child by Dr. Arturo Mendez, of San Luis, Potosi, Mexico. Read by title.

Col. Gorgas then moved the adoption of the following resolution:

"Resolved that the members of the American Public Health Association express hereby their appreciation of the courtesies extended to the Association during the session just held at Havana, by the Government of Cuba; the Honorable President of the Republic, José Miguel Gomez; the Honorable Minister of Public Health and Charities, Dr. Manuel Varona Suarez, the Director of Public Health, Dr. Juan Guiteras; and by the Chief of Sanitary Inspection, Dr. Federico Torralbas, together with other members of the official staff of the Department of Public Health and Charities; by Drs. Menocal and Lamar, Officers in charge of Quarantine and Immigration; the municipal authorities and members of the medical profession of Cuba and of Havana, and by the people of Havana generally." Seconded by Dr. Bryce. Unanimously adopted.

The meeting then adjourned.

ROBERT M. SIMPSON,
President.

WM. C. WOODWARD,
Secretary.

MINUTES OF THE FIFTH ANNUAL MEETING OF THE SECTION ON VITAL STATISTICS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION AT ITS THIRTY-NINTH ANNUAL MEETING, HAVANA, CUBA, DECEMBER 5th TO 9th, 1911

Tuesday, December 5, 1911, 2 p. m.

The meeting was called to order by the chairman. In the absence of the Secretary, the Chairman requested that a Secretary pro tem be appointed. Dr. Wilbur nominated David S. South, State Registrar, Trenton, New Jersey. The nomination was seconded by Mr. F. D. Beagle, State Registrar of New York, and Mr. South was declared elected Secretary pro tem.

The minutes of the last regular meeting were read and approved.

The Nominating Committee was named as follows:

Dr. Cressy L. Wilbur, *Chairman.*
Dr. W. S. Rankin
Dr. P. H. Bryce
Mr. F. D. Beagle
Dr. W. H. Davis.

The nominations were closed and the Secretary was ordered to cast the ballot for the election of the Committee above mentioned, which was done, and the said Committee declared elected.

The report of the Committee on Membership, it was decided, should be made later.

The next order of business was the election of a Member of the Advisory Council, and Dr. Wilbur nominated Dr. W. H. Guilfoy. The Secretary was ordered to cast the ballot for Dr. Guilfoy, who was accordingly declared elected.

The next order of business was the Chairman's address, and the Chairman, Dr. Batt, announced that he had prepared no written address but would make such suggestions as in his opinion would improve the methods of statistical practice, especially relating to age divisions in infant mortality. Dr. Batt's remarks were greatly appreciated, and at the conclusion of his address, Dr. Wilbur moved that Dr. Batt be requested to prepare a paper

containing the substance of his remarks, and, if possible, amplify the same, and present it to the section at his pleasure.

The next order of business on the program was the "Discussion of Uniform Primary Tables for the Presentation of Weekly Mortality Reports of Municipalities." Dr. Guilfoy opened the discussion by requesting opinions of those present as to the advisability of incorporation in the weekly reports, reading matter of interest pertaining to the public health, such as is issued by the Boards of Health in the cities of Buffalo and Chicago.

The discussion was also taken up by Drs. Bryce, Holton, Swartz, Townsend, Rankin, Wilbur, and Mr. Beagle and Mr. South.

Dr. Wilbur remarked that, in his opinion, the publication of a Weekly Bulletin should be encouraged, and that they should have at least two important subjects each week for presentation, and suggested that the statistical part of the Bulletin, and also the portion relating to Health Administration, be given careful attention.

Dr. Batt suggested that in his opinion every municipality should be encouraged to publish a regular bulletin.

Dr. Bryce moved that this section transmit a bulletin report with the request that the Statistical Committee draw up a weekly report for municipalities, based upon the various reports in existence, with the suggestion that these statistics form the basis of notes, to be distributed for the information and education of matters relating to public health, and that the Committee be instructed to bring this form of report before the state and municipal authorities for adoption. Carried.

The next question taken up was the discussion of "Uniform Primary Tables for the Presentation of Monthly Reports of Municipalities," and, in this connection, Dr. Wilbur submitted, as forms, the Bulletins published by the Board of Health of the state of New York, and also the states of Connecticut and Michigan, as forms for monthly reports of states. These forms were also referred to the same committee, covered by the motion made by Dr. Bryce in reference to the previous tables.

Dr. LeRoy, of Havana, was next introduced to the section, and invited the members present to visit the exhibit prepared by him in the Lobby of the Hotel Sevilla. Dr. LeRoy was thanked for his kind invitation, and Dr. Wilbur moved that the bulletin published by Dr. LeRoy be included in the ones referred to above. Dr. Batt, the chairman of the section, also thanked Dr. LeRoy for the special attention he had given in preparing an exhibit on Vital Statistics.

Dr. Rankin of North Carolina called attention to a chart published by his department, and agreed to submit a copy of the same at the next annual meeting. Dr. Rankin then moved that a committee be appointed to report on tables on Infantile Mortality at the next annual meeting.

The meeting then adjourned to meet at two o'clock the following day.

Wednesday, December 6, 1911.

The meeting of the section on Vital Statistics was called to order by Dr. Batt. The report of the Committee on Infantile Mortality Tables was received, and after discussion was adopted and recommended to municipalities and states for their adoption.

On motion of Dr. Batt a vote of thanks was extended to Dr. Coleman for supplying the members of the section with copies of the Bellevue Hospital Nomenclature of Diseases, and the secretary instructed to notify Dr. Coleman of this action.

The nominating committee suggested the following officers for the ensuing year:

REPORT OF NOMINATING COMMITTEE

For—

Chairman—Dr. Wilmer R. Batt
Vice Chairman—Dr. Jorge LeRoy
Secretary—Mr. David S. South

Advisory Council

Dr. P. H. Bryce
Dr. W. F. Snow
Dr. W. H. Guilfoy
Dr. M. V. Heckard
Dr. Mendizabal
Dr. Cressy L. Wilbur as Honorary Member

Committee on Membership

Dr. William H. Guilfoy

Committee on Program

Dr. Wilmer R. Batt

Committee on Publication

Dr. Henry D. Holtan

Committee on Legislation

Dr. C. V. Chapin
Dr. W. C. Woodward
Dr. W. R. Batt

Committee on Forms and Methods of Statistical Practice

Mr. David S. South
Dr. W. F. Snow
Dr. F. L. Hiller (Mo.)

Committee on Forms of Statistical Tables

Dr. W. H. Davis (Boston)
Dr. A. G. Young
Prof. W. F. Willcox

Committee on Occupations

Mr. Frederick L. Hoffman

It is recommended that the regular procedure of the section, as provided in the constitution, be strictly carried out during the ensuing year as a test of the pratical working of the methods proposed, and that chairmen and members of committees co-operate therein.

Respectfully submitted,

CRESSY L. WILBUR, *Chairman.*

Dr. Batt was re-elected as Chairman, accepted the office with well chosen remarks, and assured the members of the section of his continued loyalty to the cause of Vital Statistics, and suggested that in future efforts be made to hold the meeting of the Section on Vital Statistics at such time when other sections of the organization were not in session. Dr. Batt thought that in this manner a much larger attendance would be had.

Dr. Bryce then moved that Dr. Batt consult with the chairmen of other sections as to the arrangement of the program as suggested.

Dr. Batt brought before the section the report of Mr. Crocker of Williamsport, Pa., for consideration as to the advisability of co-operating in securing improved marriage and divorce laws. Dr. Wilbur moved that the matter be referred to the Committee on Statistical Practise and the Committee on Legislation for report next year. Adopted.

Dr. Wilbur suggested that the standard marriage blank be adopted.

Dr. Rankin then discussed the possibility of securing complete mortality registration in the South, and in this discussion Dr. Rankin gave his personal experience in securing co-operation of officials, and cultivating public opinion in regard to the Registration of Vital Statistics. The discussion was also continued by Dr. Bryce, Dr. Dowling, Dr. Wilbur and Mr. Babcock. At the conclusion of the discussion Dr. Batt commented upon the excellent manner in which Dr. Rankin gave his experience and requested that Dr. Rankin prepare in writing the substance of his remarks to be made a part of the transactions of this section. Dr. Rankin agreed to prepare such a paper.

It was next decided to take up the program arranged for Saturday morning, and the question as to the discussion of Uniform Methods in the Registration and Classification of Still-Births, was presented by Dr. Batt. Most of the registrars present gave their experience and suggestions as to

proposed rules of statistical practise in this respect, and at the end of the discussion a proposed rule was suggested as follows:

Proposed Rule.
Still-Births.

Rule No. —— It is desirable that still-births shall be registered at all periods of uterogestation, but for statistical comparisons two divisions may be made:

(a) Still-births over the period of viability, (5 months).

(b) Still-births under the period of viability.

It was then moved by Dr. Wilbur that this question be laid over for another year, and if possible, the Committee on Forms and Methods of Statistical Practise report in reference to this matter at the next meeting. Adopted.

The following resolution was offered by Dr. Batt:

Resolved, that it is the sense of the American Public Health Association that all reports of communicable diseases, other morbidity, accidents, occupational diseases and mortality, primarily dependent upon statements of physicians, should be made returnable to the State Health Departments charged with the general duty of collecting and compiling the Vital Statistics of each state.

This resolution was also adopted.

The meeting then adjourned to convene at the call of the chair.

Wilmer R. Batt,
Chairman.
David S. South,
Secretary.

BOOK REVIEWS

Report of the Commission on Milk Standards Appointed by the New York Milk Committee. *Public Health Reports, Vol. XXVII, No. 19, May 10, 1912. pp. 673-700.*

The report of the Commission on Milk Standards, appointed by the New York Milk Committee, marks a distinct advance in the movement for improved milk supplies, and in the matter of rules and regulations dealing with this subject is likely to bring system out of chaos, which will be advantageous to producer, dealer and consumer. The committee has done well to point out that this betterment involves an economic problem, as it is one incapable of satisfactory solution without appreciation and financial support from the consumer. The plea for legislation, wherever needful, clothing local boards of health with more power, and for substantial financial support of administrative departments in charge of the hygienic control of milk supplies, directs attention to two existing drawbacks to successful results under the usual prevailing conditions.

Uniformity in pasteurization methods is a desideratum which has been treated in a commendable manner.

In the matter of stating bacterial counts, the committee, by recommending the use of a figure known as the "bacterial content," has attempted a solution of a problem which has proven vexatious to health officials. This suggestion has the advantage of simplicity and uniformity, and when adopted will render the results from laboratories employing this system readily comparable. The plan for rating a city's entire milk supply is worthy of general adoption. Concerning the enforcement of bacterial standards, there is no suggestion as to what the committee deemed the preferable method, although under the heading of "publicity" there is a general recommendation that the reports of laboratory analyses of milk made by departments of health be regularly published. This feature of publicity is a most effective agency, and where employed has proven a potent factor in directing the attention of consumers to the commendable milk supplies. The committee believes that to warrant publication of results there should be at least four consecutive bacteria counts of separate samples within a period of not more than four weeks.

Relative to the chemical standards proposed, it would appear that manipulation of milk has been invited by the advocacy of the factors 3.25 per cent. fat and 8.5 per cent. solids not fat. Such standards in actual practice will mean that until all men are honest, richer milk will in many instances be subject to removal of cream, or be combined with skimmed milk or judiciously watered, to reduce it, as far as safety will permit, to the standards mentioned above. The standard for cream has been placed at 18 per cent. milk fat, and it should be "free from all constituents foreign to milk." The present use of unsweetened condensed milk in cream as a deceptive agent appears not to have been considered by the committee, or, if so, no suggestion is made as to the necessity for checking this admixture. Furthermore there is no recognition of the fact that the greatest fraud in the traffic in this commodity is in the sale of the so-called "heavy" cream, and concerning which the proposition might well have been advanced that cream containing more than 18 per cent. milk fat should be sold upon a guaranteed fat basis. The committee believes, however, in the sale of milk under a "guaranty system."

The term buttermilk has been restricted to the product which remains after the churning of butter. There appears to be no more reason for prohibiting the use of this name to the product made from milk or skimmed milk with a "starter," than that the term butter should only be applied to the variable substance made from cream under old methods, and should not be given to butter when prepared from cream scientifically ripened. The committee proposes

that milk or skimmed milk soured so as to resemble buttermilk should be known by some distinctive name.

The commission passed a resolution presented by a special committee, by which milk changed by the addition or subtraction of cream should be labeled "adjusted milk." A revolution in the milk business would result if skimmed milk could be distributed as "adjusted milk." In another portion of the report, however, it is stated that milk from which the cream has been abstracted should be conspicuously labeled "skim milk," containers should be painted a distinctive color, and a tag bearing the words "skim milk" should be attached to the buyer's container. "Substandard milk" is a term proposed for natural milk containing less than 3.25 per cent. but more than 2.5 per cent. milk fat, provided the percentage of fat does not fall below a definite percentage that is stated in a conspicuous manner on the container. A label worded "milk below standard" would undoubtedly convey more meaning to many consumers than that suggested by the committee.

The commission has classified milk into four grades; namely, Class A—Certified milk or its equivalent; Class B—Inspected milk; Class C—Pasteurized milk; and Class D—Milk not suitable for drinking purposes. The wisdom of the recognition of this "Class D" milk is a debatable issue, and it is certain that it will be used contrary to the ideas of the committee, despite the proposition to have it delivered in a distinctive container. Milk is milk and will continue to be to a majority of consumers for many future years, despite this safeguarding plan proposed. Milk under this classification is that containing over 1,000,000 bacteria per cubic centimeter, or from farms scoring less than 40 per cent., which has been pasteurized or heated to a higher temperature before being offered for sale.

The proposition to label milk with the grade in which it is to be sold is excellent, provided it can be accomplished through the medium of caps, so as not to influence the price of this commodity. Labeling, however, "with the date of delivery to the consumer" does not possess the merit of common sense.

In the adoption of rules for the production, handling, and distribution of milk, wisdom has been shown in the division into groups of requirements which should be enforced, and into recommendations for adoption "wherever practicable as a means of improving the milk supply above the actual point of safety." Without discussing these in detail, it may be stated that the proposed requirement that "no milk from a dairy which scores below 70" on the score card of the United States Bureau of Animal Industry, "shall be sold" as raw milk is a standard attainable for only a minority of dairies supplying many cities and towns with milk at this time. The product from farms scoring less than 70 and not below 40 is to be sold after being heated, as pasteurized milk.

The work of this committee will wield a powerful influence in bettering the milk supplies of the future and its members are to be commended for this able report, and the celerity with which their task was brought to its present high standard.

James O. Jordan.

The Influence of Caffein on Mental and Motor Efficiency. *By Dr. H. L. Hollingsworth. Archives of Psychology, No. 22, April, 1912.*

Caffein is the alkaloid present in tea and in coffee. It is an active drug and, in large doses, a poison. A recent government bulletin (U. S. Department of Agriculture, Bureau of Chemistry, No. 148, Salant and Rieger) gives information in regard to the quantities which are toxic and those which are lethal for various animals. But the usual employment of caffein-containing beverages is based on the popular belief that they are stimulating and scarcely harmful. The amounts of the pure compound used by Doctor Hollingsworth are comparable with the quantities taken by habitual drinkers of tea and coffee from day to day. The largest single dose administered (6 grains) is not much more than the caffein content of two large cups of coffee.

Earlier trials have been rather numerous but they now appear to have been faulty in matters of detail and the present research is certainly unparalleled in the number of experiments included and the scrupulous attention paid to possible sources of error. Sixteen subjects, ten men and six women, were engaged under formal contracts to give their time conscientiously to the tests during 40 days. The director had the coöperation of a staff of six assistants. The data secured are impressive in bulk and have been classified and discussed with a conservative spirit and admirable clearness.

In all such studies the necessity of excluding all influences due to suggestion is well recognized. In the present instance the subjects never knew when they were receiving the caffein. They were given from time to time pills, capsules, and glasses of soda-water, most of which were blank but some of which contained the alkaloid in recorded amounts. There was a preliminary control period of several days during which no caffein was given but the routine of life became established and the succession of tests ceased to be novel.

The attempt was made to ascertain first of all the effect of caffein upon the ability to make dots at the highest speed. This is a measure of neuro-muscular facility in a simple and not skillful act. With all doses there was a gain in rapidity demonstrable during a period of two to four hours. The greatest degree of this stimulation was not over 8%. There was no sign of a compensatory fall below the initial ability as the effect of the drug wore off.

In another series of experiments the subject was required to insert a rod into one after another of three sockets as rapidly as possible. This tests accuracy of aim and refinement of coördination as well as sheer speed. Here again the results showed a certain gain in efficiency excepting with large doses which caused some unsteadiness.

The effect made itself felt after about an hour and was noticeable for as long as four hours. Once more there was no evidence of a damaging reaction.

Passing on to tests of more strictly mental activities the investigators recorded (1) the time required to name 100 colored squares in a changeable order, (2) the time taken in giving the adjectives of meanings opposite to those of 50 read to the subject, and (3) the time needed to add 17 to each of a long series of numbers. In all cases caffein was found to facilitate prompt and correct responses. Instead of being followed by any retardation of the mental processes involved the period of stimulation seemed to influence favorably the performance on the next day. Observations on the power to discriminate between colors at short notice and on the ability to recognize and strike out certain digits in a page of numbers gave no striking results.

An ingenious test of the power to hold a rod within a metal ring without touching it showed that caffein is distinctly unfavorable to the greatest steadiness, a conclusion which many a coffee drinker can confirm. Head-ache, irritability, and sleeplessness were reported by some subjects but were not so closely correlated with former abstinence nor with the absolute dosage as might have been anticipated. The statement is made that the persons of lighter build were more unpleasantly affected than their heavier associates and it is assumed that this simply means that the lighter individuals received relatively stronger doses. May it not well be that the heavy build is a sign of an organization not easily stimulated to heightened metabolism by any such agent?

In general it appeared that the invigorating effects of caffein were more marked when initial fatigue was present than when the subject was well rested. This is as we should expect. The stimulation was delayed and perhaps somewhat diminished when the alkaloid was taken at meal-time. The absence of a phase of depression after the positive effect seems to be the most remarkable fact demonstrated. It is properly claimed, so far as the experimental findings are concerned, that the regular use of tea and coffee is distinctly supported. The difference between these beverages and alcoholic liquors is emphasized afresh. Caffein and alcohol have this in common: that they both abate the sensation of fatigue. Both give the user a feeling of ease and

facility. But with caffein this feeling is the accompaniment of a truly enhanced capacity for work while with alcohol it has often been shown to be a subjective illusion.

Reference to the most practical of Doctor Hollingsworth's tests has been deferred to the last. A subject was employed for short periods in copying literary extracts on the typewriter. Caffein was found to exert little influence on the speed maintained but a very favorable one upon the correctness of the copy. This stands in sharp contrast with many data regarding alcohol.

The sixteen persons who submitted to the trials included only three who declared themselves to be abstainers from tea and coffee. These three did not react in markedly different fashion from the habitués though one of them (a woman, No. 11) was probably the most susceptible to the compound of any of the company. We should not be warranted on the ground of these results in concluding that every individual can drink coffee with lasting advantage but it must be admitted that the facts so carefully gathered are unexpectedly favorable to the "cup that cheers."

Percy G. Stiles.

Practical Method of Sewage Disposal. *By Ogden and Cleveland, New York. John Wiley & Sons, 1912, 8vo. 132 pages, 52 figures, $1.50 (6/6) net.*

This book treats entirely of methods of sewage disposal for residences, hotels and institutions. These methods are adaptations of the well-known principles of the septic tank, sub-surface irrigation, sand filtration and broad irrigation to plants of small size. No new principles are developed and the various chapters are concerned chiefly with details of construction.

To engineers familiar with the author's previous books on sewer design and sewer construction, this book will be regarded as merely a supplement, but to the general reader not familiar with the subject, it will prove of interest. It is not, however, a sufficient guide for a layman intending to build works, and in some respects it may prove disappointing to him. For example the chapter on Estimates of Costs, describes methods of estimating but gives no idea of what an actual plant is likely to cost. Nothing is said in regard to the operation of plants after construction, and this is one of the most important features of the subject, and one almost universally ignored by the owner. The author assumes that cesspools are not to be recognized as a proper method of sewage disposal, yet many competent sanitarians believe that under proper conditions and with proper care, they furnish a method of disposal quite as satisfactory as a more elaborate plant that is not well taken care of.

G. C. Whipple.

Annuaire-Statistique International. Des Installations D'Épuration D'Eaux D'Égouts, to the first of July, 1911. *With the laws and regulations in force on the subject of drainage in most countries. By B. Bezault, Sanitary Engineer. Quarto, 172 pp., illustrated by 20 photographs and 2 statistical diagrams. Masson et Cie, Éditeurs, Paris, 1912.*

In the introduction to this statistical volume the author states that the first septic tank and contact beds in France were installed near Dieppe in 1899. Some years after an experimental plant was constructed near the sewage farm at Achères. Since 1901 experiments have been made with the sewage of Paris, but the progress has been very slow, notwithstanding the information at the hands of competent authorities. There is considerable opposition to sanitary progress and to hygienic improvement, even among the physicians. The author compares progress in France to that in other countries, expecially in Teutonic and Anglo Saxon lands. In conclusion to the introduction he expresses the hope that France will join in the progress which the rest of the world is making.

The book contains statistics concerning almost 3,000 installations gathered from all the

principal countries of the world. Besides, there is a brief description of the various well-known methods of disposal. The subjects are taken up by countries, and under each heading is an abstract of the sanitary laws of the country and statistics regarding the general mortality and that due to typhoid fever and tuberculosis. Following this is a statistical summary, arranged geographically, and well illustrated with photographs of some of the newer plants. The European statistics are much more complete than those of the United States, although there are good reviews of the laws of Massachusetts, New Jersey, New York, Ohio and Pennsylvania, photographs of parts of the Columbus and Baltimore plants and fragmentary data regarding twenty-five or more cities. The American statistics are supposed to cover the years 1907 to 1910, but strangely they omit many important plants constructed during that time.

The book would serve as a very good guide book of the European sewage disposal plants.

Two statistical diagrams apparently show that the mortality is in inverse ratio to the degree of development of sewage disposal, and in direct ratio to the use of primitive methods of disposal. There is no mention, however, of the fact that the state of civilization which is responsible for sewers may also have had some effect upon other conditions equally important as effecting the mortality. *R. S. Weston.*

Baby's Teeth to the Twelfth Year. *By Albert Westlake, D.D.S. New York and London. Mitchell Kennerley, 1912. Cloth, 50 cents net.*

Recent developements in the study of oral and dental hygiene lend particular interest to a little booklet issued by Mitchell Kennerley (New York) from the pen of Albert Westlake, D.D.S., a well-known dentist of New York City. The title of Dr. Westlake's book is "Baby's Teeth to the Twelfth Year." He emphasizes the fact that the care of the teeth in babyhood and in early childhood demands unusual watchfulness on the part of the parents, particularly the mother. The interest and care of the mother for the teeth of her child begins long before the birth of the child and should extend at least until the child is twelve years old, when presumably good habits with regard to the personal cleansing and care of the teeth will have been established. Good teeth are the product of good wholesome bodies and in order to secure good teeth, proper attention must be paid to diet and exercise and general health.

Teachers in public schools, mothers, and other persons will find Dr. Westlake's booklet of unusual interest.

Philip P. Jacobs.

HEALTH DEPARTMENT NOTES

Richmond, Va.

It is always with pleasant anticipations that the Annual Report of the Health Department, City of Richmond, Virginia, is opened, and the last issue for 1911 is no disappointment. Dr. Levy, the able health officer, always has something interesting to say and his sixth annual report is a volume which repays careful perusal. This is one of the annual reports which should be read by all students of sanitary science, as it not only gives a clear account of the health status of the city but contains much of general interest and importance.

The Health officer after pointing out the fallacy of considering too closely the crude death rate of any city as an index to its healthfulness particularly for the purpose of comparing communities with different kinds of population, reports that the death rate for Richmond for 1911 showed a decrease of 1.55 per 1000 over 1910. There were actually 169 less deaths. After non-resident deaths were excluded the rate was 18.96. Decreases in the number of deaths from typhoid fever, measles, pneumonia and other diseases of the respiratory system, and consumption largely produced the diminution in the total. There were increases in the death rates from dysentery, diarrhea (under two years) and suicides.

The remarkable typhoid fever record was again bettered, there being only 23 deaths from this disease giving a rate per 10,000 of 17.8. While the department is worthy of praise for much good work in many lines, yet the typhoid fever record impresses one so strongly that it is difficult to pass it by without enthusiastic mention. The average rate for the past three years has been less than half of the lowest rate ever recorded before. As in the 1910 report a brief history is given of all fatal cases. At least 8 such cases were contracted outside of the city and the diagnosis was distinctly doubtful.

The diphtheria record for 1911 was also very satisfactory. One point that is especially emphasized by Dr. Levy is the work done by Dr. Lipscomb, the consultant of the department on this disease. He has been wonderfully successful with the cases that he has intubated during the past 5 years. Dr. Levy after reviewing the statistics of cases intubated states that he does not know of a diphtheria hospital, with all its advantages which can show as good results as Dr. Lipscomb obtained treating the cases at home.

One of the most interesting parts of the report deals with comparative mortality of the white and colored races. The following extracts from the report are of sufficient general interest to warrant reprinting.

"As is always the case, the crude death rate of Richmond was enormously increased in 1911 by reason of the large colored population and their high death rate. The rates for both the white and the colored population were much lower in 1911 than in 1910. Of the 129,291 inhabitants estimated by the United States Bureau of the Census as constituting the 1911 midyear population of Richmond, 85,565 were white and 47,726 were colored. The colored population thus made up 37 per cent. of the total population. The number of colored inhabitants is 59 per cent. of the white.

"With non-residents of both races included, the total number of deaths in Richmond during 1911 was 2,718, of which 1,377 were white and 1,341 were colored. The colored race, with only 59 per cent. as many inhabitants as the white, had 97 per cent. as many deaths. A fairer comparison, however, is one in which non-residents among both races are excluded. Among the inhabitants of Richmond there were 2,451 deaths in 1911, of which 1,192 were white and 1,259 were colored, the number of colored decedents thus exceeding the white. Having only 59 per cent. as many representatives as the white race, the number of deaths was 6 per cent. greater. These fig-

ures are almost identical with those for 1910.

"Stated in terms of relative death rates, thereby taking into account in the one figure both the population and the number of deaths the colored death rate per 1,000 was 66 per cent. higher than the white, with non-resident decedents of both races included, and 80 per cent. higher with non-residents excluded.

"As is also usual in Richmond, the number of deaths among the colored race exceeded the number of reported births. It is recognized that the Richmond birth returns for neither race are complete and that the percentage of unreported colored births is probably greater than the percentage of white. During 1911 there were 460 more births than deaths among the white race, with deaths among non-residents included, and 645 more with deaths among non-residents excluded. Among the colored race, on the other hand, the number of reported births was 238 less than the number of deaths, with deaths among non-residents included, and 156 less not including deaths among non-residents.

"Comparing the relation between the birth rate and death rate of the white and colored races, the reported birth rate among the whites exceeds the death rate, non-residents included, by 5.64 per 1,000 inhabitants, and by 7.91 with non-resident decedents excluded. The reported birth rate among the colored race falls short of the death rate, non-residents included, by 4.99 per 1,000, and by 3.27 with non-resident decedents excluded.

"On their face these figures would unquestionably show that the colored race is actually dying out in Richmond, just as they have shown the same thing year after year. The incompleteness of the birth returns must, however, be remembered. Even allowing that this is a far more important factor with the colored race than with the white, the difference between an excess of 645 for the white race and a deficit of 156 for the colored is so great that it must be certain that the colored race is at least increasing far less rapidly than the white.

"It has been customary to believe that the fecundity of the colored race is prodigiously great, far more than sufficient to offset their very high death rate. But the reported birth rate in Richmond in 1911 was only 59 per 1,000 higher for the colored race than for the white, while the death rate was 11.22 per 1,000 higher. Even allowing for considerably less complete returns of colored births than of white, their birth rate is certainly not significantly higher than the white race, while their death rate is enormously higher. . . .

"Everywhere we hear discussions of the 'negro problem.' If the present death rate continues there will be no negro problem after a few decades, as the race will have become so insignificant in numbers as to be eliminated as a factor in our national life.

"Well wishers of the negro race, especially northerners possessing more money and goodness of heart than understanding of the negro and his need, spend annually hundreds of thousands of dollars on education of the negro along lines of questionable value. Individuals who are filled with a desire to devote a portion of their great wealth to the benefit of humanity are noted for the paucity of imagination in the methods which they select. It seems incredible that such large sums should be spent annually for educating the negro while not one cent has been devoted to studying the most vital question above discussed. In my first annual report (1906) I directed attention to the above facts and suggested that no higher service could be rendered the negro race than the devotion of a comparatively insignificant sum to the investigation of the underlying causes of his high death rate."

Lack of space prohibits referring to the admirable work done in the sanitary improvement of the milk supply, the prevention of infant mortality and tuberculosis. As already stated this report should be carefully studied by health officers and students of sanitary science.

Montclair, New Jersey.

The most interesting feature of the annual report of the Board of Health of Montclair, N. J., is undoubtedly the discussion concerning the famous *Board of Health of Montclair* v. *Borden's Condensed Milk Company* case. It will be recalled that this large milk company contested the authority of the Health Department to pass an ordinance demanding that all milk sold in Montclair must be from cows free from tuberculosis, as proved by the tuberculin test, with the possible alternative of pasteurization by methods approved by the Board. After contesting this requirement between three or four years and causing the Board to spend nearly $7,000 in cash for litigation, besides much valuable time and energy on the part of the Health Officer, which was needed for other health protective work, the contestant withdrew its appeal to the State Court of Errors and Appeals and also its suit in the United States Court, and began giving its customers the choice between milk from tuberculin tested cows and milk which had been pasteurized. "By this action" the report states, "the Borden Company has given fair promise and every reasonable assurance that it will again become what it has been for so many years before the unfortunate litigation, one of the strongest allies of the Board in its efforts to give Montclair a milk supply, every quart of which is as safe for consumption by infant or adult, as milk can possibly be made without a marked increase in cost."

The President of the Board of Health, Mr. M. N. Baker, outlines in the report a classification of Health Board Expenditures. The scheme which appears to him to be the logical one, is functional in character, and its three main heads and the leading divisions under those heads are as follows:

I. Direct Health-Protective Work.

(1) Prevention and Control of Communicable Diseases.

(2) Reduction of Infant Mortality.

(3) General Health-Building and Maintenance.

II. Indirect or Remote Health-Protective Work.

(1) Municipal Cleansing.

(2) Private Cleansing.

III. General (so far as not distributable under I and II.)

(1) Records.

(2) Research.

(3) Publicity, etc.

Mr. Baker expresses the hope that during 1912 those who are interested in rational and comparable health board statistics will come to a general agreement of a workable classification schedule. Health Officer, Chester H. Wells' report is as usual a well prepared and careful piece of work. Some of the more important facts in the report are:

1. The death rate of the town was the lowest with only two exceptions since 1885, being 10.29 per thousand. (Corrected for the deaths of non-residents).

2. The death rate from communicable diseases was very low. There was one death each from typhoid fever, diphtheria and measles. There were six from whooping cough and none from scarlet fever. Tuberculosis of the lungs caused 21 deaths, compared with 30 during the previous year.

3. The infant mortality of the town was never so low as during the past year. There were 79 deaths per thousand births.

Two thousand dollars has been appropriated for anti-mosquito work in 1912, and Mr. Wells states that if the householders cooperate with the Board, there should be no mosquito nuisance in Montclair during 1912 that can be traced to local breeding.

This is an admirable report and does credit not only to the Board of Health and to the Health Officer and his associates, but to the citizens of Montclair who evidently realize the great importance of efficient public health service and are willing to pay for the same.

Orange, New Jersey.

Orange is contiguous territory to Montclair but there are considerable differences in population, employment, etc., of its people. The population of Orange is 30,505 and of Montclair 22,833. Orange is largely industrial while Montclair is more residential. Mr. McNutt, the Health Officer, has been very active and has brought about the establishment during the year of a well equipped Laboratory for chemical and bacteriological work. A large number of new ordinances have been passed. In view of the general need of more stringent local control of rabies, a new ordinance was passed, which, it is stated, represents about the limit of the power of local Boards under the present State laws.

Much progress has been made in the supervision of the milk supply although it is pointed out that more assistance is needed in this work, and the proposal of a joint milk inspection for the various Orange municipalities is heartily endorsed by the Health Officer. The corrected death rate in the city was 14.59 per thousand, and with the exception of one year, is the lowest on record. The most striking phenomenon in the vital statistics of 1911 is the marked fall in the death rate from tuberculosis. The death rate was 183 per hundred thousand as against 229 the previous year.

The infant mortality record was not as satisfactory as in previous years. This is attributed to the great heat of July and August. It is important to point out that the special visiting nurse for infant work, who was appointed in June, gave instructions to 213 mothers who had just given birth and made 1,120 visits to these mothers and children. Of the cases visited only 2 died of preventable cause. This work is being continued and augurs well for its continued success.

This report is one of the very few to give tables showing infant and child mortality not only by causes but by age periods,—days for the first week of life, weeks for the first month, months for the first year and years for the first five years.

It would be very valuable if others, particularly larger cities, would give their infant mortality statistics in a similar manner.

Secretaries of State Boards of Health, Health Officers and others are urged to send copies of their annual reports and other publications to the Managing Editor, American Journal of Public Health, 755 Boylston Street, Boston, Mass., for notice in these columns.

PUBLIC HEALTH NOTES

The Spread of Acute Intestinal Infections.

In discussing the factors at work in this matter, Dr. H. W. Hill, of the Minnesota State Board of Health, emphasizes again the importance to be attached to the patient himself rather than to general environmental influences. The source of acute intestinal infections is the infected person, and the routes of transfer are simply those from the infected intestines to the victim's mouth. In controlling these diseases, Dr. Hill, states that the modern problems of administrative public health may be divided into:

"(a) Finding and controlling the sources, i. e., the infected persons, whether these be frank cases, mild or atypical cases or well persons.

"(b) Finding and controlling the routes of spread from these persons.

"(c) Supervision of the ordinary routes of transmission of the ordinary body discharges."

Again, the spread of infection may be local—when the infection is transported directly from the intestines, or geographical—when the infected intestine is itself transported.

Dr. Hill closes with the simile of the lock and the key.

"In all infectious intestinal diseases, as in all infectious diseases of every kind, the infectious person is the key to the situation; the sociological condition of the community into which he enters is the lock. The spread of infection is merely an index of how well the key fits the lock. Public health officers must study both, to prevent any fitting of the key with any part of the lock; that is, to prevent the infectious discharges of the infected person from connection at any point with the receptive channels in the community, through which the infection may act."

The Public Health Journal, April, 1912.

Health Conditions in France.

In an article on present health conditions in France, the *New York Times* for June 2nd quotes from the recent annual report of the Academy of Medicine's Commission to the Ministry of the Interior on recent epidemics in France, as follows: "The organization of hygiene in France is merely a vast facade behind which there is nothing."

According to the articles in the *Times*, the report declares, among other accusations of negligence, that in the past ten years the legal regulations regarding hygiene and public health have hardly been applied at all, in respect either to reporting of contagious diseases or to disinfection.

Dr. Mirman, the Director of Public Hygiene at the Ministry of the Interior, fully endorses the commission's report. He states, however, that he finds himself isolated and helpless in a struggle against the inertia and ill-will of the public. Whatever progress he has been able to achieve, he says, is at the cost of prayers, concessions, and even threats.

"The law as to hygiene," he continues, "has made no impression on the Nation and remains a dead letter, while even municipalities and General Councils refuse the necessary funds for the purpose because it is of no value in an electoral campaign."

Dr. Roux, Director of the Pasteur Institute and President of the Superior Board of Public Hygiene, says:

"It is hardly exaggerating to say that health precautions do not exist in France. While legal provisions are hopelessly inadequate, no passing of new acts will bring about better conditions until the nation at large drops its present attitude of stubborn resistance to regulations and advice on the subject."

Prof. Metchnikoff declares that the French public contempt for any measures for the preservation of health and the prevention of contagious diseases is "absolutely amazing." As a case in point he quotes the experience of a colleague whose work consisted in diagnosing patients suspected of having contracted the worst contagious disease known. He made it a practice to

ask these patients if they took steps to prevent persons living with them from being infected. In no case had he received an affirmative reply.

"It is the general opinion" says the *Times* correspondent, "that three causes contribute to retard progress in this direction: The absence of any sort of unity of action among the different services of the administration, the hopeless insufficiency of the State's share in the expenses of public hygiene, and the absence of any department with a system of inspection to keep the authorities on the move.

Breast Feeding and Infant Mortality.

The correlation between adequate feeding of the mother and the weight of the nursing infant brought out in the note below from the Medical Officer of April 27th has a significance for those interested in campaigns directed against infant mortality.

"For some years past the Birmingham Corporation, on the advice of Dr. Robertson, the medical officer of health, has paid special attention to measures having for their object the reduction of infant mortality, which in some parts of the city is exceptionally high. In a recent report on the work done by Dr. Jessie Duncan in one of the most squalid districts of the city, an interesting account is given of inquiries which were made as to whether certain conditions in the infant were due to poor quality or insufficiency of breast milk in the case of those infants whose mothers were below the poverty line. Samples of milk were obtained to the number of 136 from 15 nursing mothers in a poor class district. Each sample represented part of the whole content of the breast which had not been emptied for some hours, and the samples were submitted for analysis to the city analyst. The solids-not-fats in the specimens examined were very constant, in amount the average being 8.4 per cent., while the variation in amount was from 7.7 per cent. as a minimum to 9.3 per cent. as a maximum. There was nothing to show that the milk of the robust women was better than that of the weakly women, and the age of the mother or the number of children she had had made apparently no appreciable difference in the composition of the milk.

All the samples were taken from women who were in a more or less poverty-stricken condition, but who were receiving one substantial meal during five days a week. On these five days the percentage of fat in nearly all cases increased, and it diminished when the meals were discontinued. While the mothers were being fed the baby's weight curve also improved coincidently with the increase in the fat of the milk. These observations of Dr. Jessie Duncan (which are, we believe, the first of the kind to be recorded) are of considerable interest, and justify the advice which is being increasingly given by medical officers of health that the children should be attacked through the mothers."

Temperature and the Typhoid Bacillus.

"The effect of temperature upon the vitality of the typhoid bacillus in raw Thames River water formed the subject of part of the seventh research report, recently issued by Dr. A. C. Houston, director of water examination to the Metropolitan Water Board, London. In all previous experiments the temperatures, being those of the laboratory had been considerably higher than those of the outside air. It was accordingly considered desirable that trials should be made so as to embrace a wide range of temperature. Six stoppered bottles, each containing 150 cu. cm. of raw Thames water, were severally inoculated with 1 cu. cm. of typhoid emulsion, and the bottles, which were about three parts full, were stored in the dark in ice chambers or incubators, according to the temperature desired, which accurately registered and maintained the following temperatures in degrees Fahrenheit: 32, 41, 50, 64.4, 80.6, and 98.6.

"At weekly intervals, after shaking so as to include the sediment, the contents of the bottles were examined. At the end of the first week positive results were obtained in all the samples. At the end of the second week, a negative result was obtained with the mixture kept at 98.6° Fahr., the highest

temperature. At the end of the third week there was a negative result with the mixture kept at 80.6°. The end of the fourth week showed a negative result with a temperature of 64.4° and the end of the fifth week, with a temperature of 50°. Seven weeks elapsed before all the bacilli in the mixture kept at 41° were dead and nine weeks were required to entirely exterminate all the microbes in the mixture kept at the freezing point.

"For seven months in the year the average outside water temperature is higher than 50.° At this temperature there were no bacilli alive at the end of the fifth week, while at the end of the third only an average of three per cubic centimeter persisted, the average initial number being 103,328 in the same volume. During the remaining five months of the year the average water temperature is about 41°, a temperature at which, although it is said to be decidedly less favorable to the rapid death-rate of the typhoid bacillus, still reduced, on the average, the initial number in four weeks from 103,328 to 3, the worst result showing a reduction from 23,333 to 12 in this time.

"The typhoid bacilli used in this experiment were cultivated, and hence more persistent, Dr. Houston states, than uncultivated bacilli would have been, and by the second week even at the temperature of freezing water the reduction was over 99 per cent. on the average. The conclusion is that, although there is all this reduction at the end of the second week, it is specially desirable that the water should be adequately stored antecedent to filtration during the five cold months of the year."

Eng. Record, Vol. 65, No. 22, June 1, 1912.

Babies' Welfare Association.

Social workers of New York City have adopted a new system of conducting their baby saving campaign. The Association of Infants' Milk Stations, organized last summer, which did such effective work in eliminating duplication of effort, has just been re-organized on border lines under the name of The Babies' Welfare Association. It seeks to include in a permanent body all the agencies in the city directly or indirectly interested in infant welfare. A central office has been established at the headquarters of the Department of Health which will act as a clearing-house for information for all forces in the field and conduct a continuous campaign of educational publicity.

Co-operation without amalgamation is the object of the association. The individuality of the various organizations has been in no way encroached upon. Nor has any new appealing body been thrust into the field. The expenses of the central office have been voluntarily provided by several organizations out of funds appropriated for particular branches of the work in their own budgets. These bodies will accordingly take responsibility and receive due credit for the specific activities to which they contribute. Never before in this city has so complete and harmonious a plan of co-operation been effected in this field.

A general committee will be made up of representatives of each organization included, of which it is expected that there will eventually be over one hundred in the membership of the Association. From this body an executive committee of eight has been elected to carry on the work with an Executive Secretary. Sub-committees will provide for complete representation of all interests.

The executive committee consists of Dr. S. Josephine Baker, Chief of the Department of Child Hygiene, of the Department of Health, chairman; Paul E. Taylor, of the New York Mil'k Committee; Miss M. L. Daniels, of the New York Diet Kitchen Association; H. Fleischman of the Educational Alliance; John A. Kingsbury of the Association for Improving the Condition of the Poor; Dr. G. R. Pisek of the Post-Graduate Hospital; Mgr. D. J. McMahon of the Association of Catholic Charities; and A. E. Wakeman of the Brooklyn Children's Aid Society.

Besides the organizations directly represented on the executive committee the Association will include the other milk station organizations of the city, such as the Nathan Straus' Laboratories, the Henry Street Settlement, and the Babies' Dairies; hospitals and dispensaries which treat children under two years of age; day nurseries; such social

service agencies as the Charity Organization Society, the various Hebrew charities, ice distributing and outing agencies; and agencies doing research work such as, the Bureau of Municipal Research, the Russell Sage Foundation, and the Rockefeller Institute.

The activities of the Association will be confined at present to children under two years of age.

Boiled Milk for Infants.

The Medical Officer for May 25th gives an abstract of Dr. Janet E. Lane-Claypon's recent report to the Local Government Board upon the available data in regard to the value of boiled milk as a food for infants and young animals. (New Series, No. 63, London, Wyman & Sons.) Dr. Lane-Claypon has reviewed the literature of the subject and has also investigated the matter in an experimental way. In her experiments one group of babies was fed on boiled cow's milk only, and the results were compared with those from a comparable set of babies fed in the ordinary way on untreated milk. Her general conclusions are of especial interest in view of some of the objections which have been raised to pasteurization and are stated by the Medical Officer as follows:—

"They are that there is apparently no serious loss of nutritive value produced by feeding an animal upon boiled milk derived from an animal of the same species: that when an animal is fed upon the milk of another species, the milk from which has been found to be suitable for this purpose, such small differences as have been found in the nutritive values of raw and boiled milk, have been in favour of boiled milk and that the milk of the same species has a considerably higher nutritive value for that species than the milk of any other species."

The Pollution of Wells.

"Well and spring pollution is altogether too common an occurrence in these days, when engineers, particularly those engaged in building and operating waterworks, must realize that the ordinary principles of common cleanliness are necessary to enable people to herd together safely in our cities in ever-increasing numbers. Unfortunately, a clear well water carries in its very sparkle a false sense of security to which even water-works officials are susceptible. From a well several hundred feet deep in the basement of an office building in a western city, the bacteriological tests never showed more than three to five bacteria per cubic centimeter, yet periodically an intestinal form would be found. A large sewer in an adjoining alley, not 15 ft. from the well, and a rusted leaky casing afforded all the explanation needed to trace the path of the germs to the tenants who were inclined to blame the water for such sickness as occurred.

A leaky conduit from a spring to the pump well in a Middle West city, over which a flood carried sewage, and the Rice well contamination by sewage-laden ground water reported on page 614, both warn the waterworks engineer to look over his plant carefully and frequently, lest the encroachments of improvements in the way of sewers, the abandonment of old pipes or some other condition may not cause contamination during an unusual flood or downpour in a supply which his semi-occasional bacteriological analysis tells him is beyond reproach.

At Lincoln it was necessary for the ground water surrounding the well to be high at the same time the sewer was obstructed, for it to be possible for the sewage to travel to the well by a number of more or less open channsel, which surrounded the old well and of which there was no record. The presence of these pipes and ditches was not suspected by anyone until excavations were made and they were uncovered. Anyone who has ever opened excavations near a water-works property 20 years old will not be surprised at this.

This is the time of year when floods are likely to wash the naturally formed schmutzdecke over a gallery laid in a river bed or adjacent to it. Perhaps the gallery may be entirely uncovered, as at Iowa City last year, reported in this journal on September 30, 1911, or the floods may rise above a manhole the cover of which is thought to be

water-tight. At any rate, it will not be amiss to go over the system and look for contingencies of which no one will ever hear if provided for, but which may end in material loss to a city not only of lives, but reputation, in case the right combination of circumstances occur. 'Opportunity has long hair in front but is bald-headed behind,' is an old saying. A few dollars spent in a sanitary inspection may accomplish a great deal more than many thousands spent later on."

Editorial, Eng. Record, Vol. 65. No. 22, June 1, 1912.

The Jug on the Doorstep.

"In spite of special efforts to remove refuse, manure, etc., from the thickly inhabited parts of Peterborough during the exceptionally hot weather last autumn, there was a considerable amount of infantile diarrhoea and eighteen deaths resulted. In this connection Dr. R. W. Jolly, M. O. H., has called attention to the common practice of leaving an empty jug outside the door for the reception of milk. He points out that the vessel makes a happy hunting ground for flies, to say nothing of the dust from the road that is liable to be blown into it, the milk thus becoming a decidedly contaminated article of food."

The Medical Officer, April 27, 1912.

Health Study of a Mill Village.

Another contribution to the various local surveys and studies of tuberculosis conditions is that by the Rhode Island Anti-Tuberculosis Association in a little pamphlet entitled, "A Study of a Typical Mill Village from the Standpoint of Health." The study was made by Wallace Hatch and Miss Jane Barclay, Executive Secretary and Assistant Secretary of the association. To quote from the report:

"Each family in which there had been tuberculosis during the past five years—in-so-far as these families could be found—was visited, and an effort made to locate all old and new patients. In this village there were registered five tuberculous families at the time the study was commenced. House visits, enquiries and dispensary examinations during six months increased the list to twenty-five families where tuberculosis existed so recently as to warrant placing the family on the dangerous list.

A study of the employment of the present and former tuberculous patients showed that there were eighteen mill workers, of which seven were weavers, two spinners, one speeder, one carder and seven general mill hands; two were farmers, two home-keepers, one a bartender, one a clerk, and one a miller. In the twenty-five families, nineteen patients were employed under conditions which would probably lead to additional infections. One-hundred thirty-one persons, members of these families, had been exposed to infections and of this number only four had received physical examination. Seventeen persons had died of tuberculosis and there had been four new infections, since the original cases were reported. Six of the twenty-five families had been followed up by physician or nurse for long or short periods after infection or death of the patient and seventeen families had been instructed at some time and place about the communicability of the disease. Three patients were not known to a physician during their illness and sixteen were not known to the district nurse."

Municipal Health Ordinances.

A companion volume to "A Digest of Laws and Regulations of the Various States Relating to the Reporting of Cases of Sickness" has been issued by the United States Public Health and Marine Hospital Service. It is entitled, "Municipal Ordinances, Rules and Regulations Pertaining to Public Hygiene." It covers the period of January 1, 1910 to June 30, 1911 for all cities having a population of 25,000 and over. The volume deals with ordinances and regulations on communicable diseases, poliomyelitis, vaccination to prevent smallpox, spitting, food-stuffs, milk and milk products; meat, bakeries, garbage and refuse, and a score of other subjects. Under the various heads all ordinances are grouped.

"There is a general demand for the crea-

tion of a special Ministry of Hygiene in order effectually to cope with what is considered to be one of the greatest evils in modern France. In connection with the agitation there is a movement in favor of compulsory registration of tuberculosis patients. The Health Commission of the Chamber of Deputies will shortly open a debate on the advisability of this measure, and its President, Deputy Joseph Remach, has asked the Academy of Medicine to submit a report on the subject, and it is expected that the report will recommend a bill for compulsory registration."

Tuberculosis and New York's Building Code.

The Committee on the Prevention of Tuberculosis of the New York City Charity Organization Society has issued a little pamphlet in the form of a memorandum submitted to the Committee of the Board of Aldermen on the proposed new building Code. The memorandum points out many defects in the code as drafted and urges further consideration and revision before it is adopted.

Among other defects, the memorandum shows that the code would allow for dark rooms in unlimited numbers and in a variety of different ways. It would be easy, moreover, the committee contends to evade the law and the code with regard to the size of courts, and the provision of necessary ventilation from outside. In addition, the code makes inadequate provision for the erection of factory, loft and office buildings by providing insufficient free space for light and air.

These and many other provisions of the suggested code are attacked by the committee on the ground that because they tend to provide inadequate light and ventilation, they tend therefore to increase the spread of tuberculosis.

Vaccinating Against Tuberculosis.

"It has become an article of faith among epidemiologists that if tuberculosis is to be successfully dealt with it must be attacked from all sides. What those several points of attack are will be familiar to our readers, and do not need to be recapitulated. A comparatively new weapon is, however, referred to by Prof. Calmette, of Lille, in the April number of *The Universal Medical Record*. ('Some Considerations Concerning the Question of Vaccinating against Tuberculosis' by Prof. Calmette, *The Universal Medical Record*, April, 1912, p. 299.) After pointing out that the new methods of diagnosis by tuberculin show that among 100 city dwellers of 20 years and upwards, it is difficult to find seven or eight who have not been at some time or other attacked by the tubercle bacillus, and yet that even where the consumptive death-rate is highest, only about one-fifth of the total deaths are due to tubercle, he argues that there must be a very large number of persons, who in some way or other, have acquired a resistance to fatal tuberculosis. The next step should obviously be to attempt to obtain an artificial immunity. The success which has attended the researches of Prof. Calmette with this object in view is related in the article to which we have referred, and which will well repay perusal at the hands of all administrative health officers. It is a legitimate question to ask, he says, whether, in the long run, 'it may not be to the advantage of the State to enforce the vaccination of young infants against the grave forms of tuberculosis, to which they succumb in such great numbers, by means of a strain of bacilli suitably attenuated and rendered unfit for the formation of grey granulations.'"

The Medical Officer, April 20, 1912.

Niagara Falls Reforms.

Niagara Falls, N. Y., which has had the unenviable reputation of having one of the worst water supplies in the country, and which has been characterized by Professor William T. Sedgwick as "one of the worst plague spots, if not the very worst, in respect to typhoid fever in the United States," has at last reformed, having installed a rapid mechanical filtration plant with a reserve hypochlorite outfit. Operations under the new system commenced January 1st of this

year, and a marked falling off in typhoid is already apparent. This step on the part of Niagara Falls is a source of congratulation not only to the city itself, but to the whole country, the prevalence of high typhoid here being especially objectionable because of the large number of visiting tourists who come in contact with the water.

Eng. Record, Vol. 65, No. 22, June 1, 1912.

Conservation of Human Life.

A brief for the Owen Bill providing a United States Public Health Service, entitled, "Memorial Relating to the Conservation of Human Life" has been prepared by Prof. Irving Fisher and Miss Emily F. Robbins. The Memorial is published as Document No. 493 by the Government Printing Office, Washington, D. C. It deals with the waste from disease; the present methods of checking the waste and the lack of co-ordination in effort; and the further health work necessary, especially a National Bureau of Health. An appendix presents some interesting data on the methods of those who have opposed the Owen Bill.

Government List of Industrial Poisons.

The Department of Commerce and Labor is distributing a bulletin giving for the first time the English translation of the list of industrial poisonings which the International Association for Labor Legislation through its various national organizations has been revising and completing since 1908. Prof. Samuel McCune Lindsay, President of the New York Association for Labor Legislation, gives it as his opinion that the list will be a very valuable guide to the better recognition of obscure occupational diseases as well as a help to the prevention of the more obvious risks to health to which many workers are now daily and unnecessarily exposed. In four parallel columns the industrial posions and other harmful substances found in industrial processes are set out with the branches of industry in which poisoning occurs, the mode of entrance of the poison into the body, and the symptoms of poisoning. So far as possible there is also indicated those measures of relief which are to be employed at the first manifestation of poisoning.

Commissioner Charles P. Neil, commenting upon the need for the work which his department has just completed, writes, "In 1910 at the time of the publication by the Bureau of Labor of the earlier list of industrial poisons little accurate information was available concerning the prevalence of cases of industrial poisoning in American factories. No state had made any legal requirement for the reporting of cases of industrial poisoning, and in the absence of such definite basis for statistical information a general impression had prevailed that American employees were largely exempt from the dangers from which industrial workers in other countries suffered."

Special investigation in the white phosphorus match industry, the inquiries of the Illinois State Commission on Occupational Diseases, and a study of the white lead and lead oxide industries disclosing 388 specific cases of lead poisoning in 16 months, and an investigation of 60 deaths from lead poisoning occurring in New York in 1909 and 1910, all served to direct public attention to the need for legislative regulation. As a result of the disclosures of these investigations, and because of a realization of the importance of full and accurate knowledge concerning the existence of dangers from industrial poisons, laws were enacted during 1911 and 1912 in eight states—California, Connecticut, Illinois, Michigan, New York, Wisconsin, Maryland and New Jersey, requiring reports by physicians of all cases of certain occupational diseases occurring in their practice.

Registration of Pulmonary Tuberculosis.

To anti-tuberculosis workers, health officers and others who have been working for the reporting of living cases of tuberculosis, a monograph recently issued by the New York City Department of Health will prove both a stimulus and a reminder of possible failure, where the results have not been what they should have been. The book is entitled "The Registration and Sanitary Super-

vision of Pulmonary Tuberculosis in New York City," and has been prepared by Dr. John S. Billings, Chief of the Division of Communicable Diseases, of the Department of Health of New York City.

After a historical sketch of the Health Department's efforts, backed by those of voluntary anti-tuberculosis workers, to secure better registration and supervision of tuberculosis cases, Dr. Billings summarizes the present activities of the Department along this line, thus:

(1) Notification and registration of all cases of tuberculosis, 24,513 new cases of pulmonary tuberculosis reported in 1911.

(2) Free bacteriological examination of sputum.

(3) Visitation of Consumptives in their homes and continuous supervision of cases in tenement houses by a corps of 155 trained nurses.

(4) Educational measures of various kinds, circulars, lectures, exhibits, newspaper articles.

(5) Free disinfection by the department.

(6) Five classes of institutions provided, including hospitals for advanced cases, clinics, sanatorium for early cases, day camps, and the Tuberculosis Hospital Admission Bureau.

(7) Forcing certain classes of patients into a hospital and retaining them there.

(8) Enforcing regulations concerning spitting in public places.

(9) Enforcing regulations forbidding use of public drinking cup.

(10) Research studies on various lines.

Dr. Billings discusses in detail each of these various activities and emphasizes particularly the methods employed in the reporting, registration and supervision of living cases of tuberculosis.

The book is No. 1 (February, 1912), in the Monograph Series of the New York City Department of Health.

Rome Bread Served in Paper.

"The municipal authorities at Rome, Italy, have decreed that no bread or rolls shall be served in restaurants until wrapped in paper with the seal of the bakery attached. The cafes have accepted the order."

Public Health Journal, June, 1912.

New York Conference of Mayors.

At the recent Annual Conference of Mayors of New York State, the following resolutions were adopted on matters of interest to public health workers:

WHEREAS, we feel that among the greatest curses with which the cities of this State have to contend are prostitution and the diseases incident thereto, therefore, be it

Resolved, That it is the sense of the Third Annual Conference of Mayors and officials of cities of the State of New York, that it is decidedly opposed to the official recognition or segregation in any manner of houses of prostitution, and that the Mayors here assembled will do everything in their power to repress and aid in the suppression of prostitution.

Resolved, That this, the third Conference of Mayors and other officials of the cities of the State of New York, express its gratification at the substantial progress of the most important and immediately practicable movement for the conservation of life and human efficiency—the suppression of tuberculosis. Already nineteen counties have established or voted to establish tuberculosis hospitals. In seven cities, eight municipal or charitable tuberculosis hospitals are now in operation and five additional city hospitals are assured. Twenty-five localities have free tuberculosis dispensaries, of which twelve are supported by municipal appropriation; and sixty-one tuberculosis visiting nurses are employed in forty-eight localities, of which twenty-one are provided at public expense, and be it further

Resolved, That this Conference earnestly urge Boards of Supervisors, in counties in which no tuberculosis hospitals are provided for, to establish such hospitals at once; and further, that we urge cities and villages that have no dispensaries or visiting nurses to provide such preventive and relief agencies promptly, to the end that humane care and

treatment be offered to those afflicted with this preventable and curable disease which is now in most cases neither prevented nor cured, and that thousands of others who, under present circumstances, will fall victims to its ravages be saved to their families and their communities.

New York's Birth Rate.

The Commissioner of Health of New York, calls attention to the fact that the number of births recorded in New York City during the past five months of 1912 was 56,258 as against 56,082 for the corresponding period of 1911. This rate would indicate a decrease of 1.10 per 1,000 of the population which means if this low birth rate is to continue, that there will be 5,690 fewer births recorded during the year 1912 than during 1911.

It is not believed that this decline in the statistics is due to natural causes. A comparison of the birth and death indices for the month of May in the Borough of Manhattan shows that there were 17 children under three months of age who died during the month of May and whose births had not been recorded. If we remember that one out of every five children dies during the first three months of life and as this method of ascertaining the number of births not reported applies necessarily only to those that have died, it is very evident that the number of births not reported during the month of May must be considerably larger than the 17 referred to. Again, the decline is most marked in the Borough of Brooklyn, where the birthrate has fallen two points during the first five months of the year, while, on the other hand, the infant death-rate of those under one year of age has remained stationary. If the decline in the rate were dependent upon natural causes, it would be accompanied by a decrease in the number of children dying under one year of age, but we find, in the Borough of Brooklyn, that the number of deaths of such infants in 1912 exceeded those in 1911 by 43. Moreover, the number of marriages reported in 1911 was 48,765, an increase of 2,348 over those of 1910.

From these figures it would seem to be evident that the decline in the birth rate is due to the fact that physicians and midwives have, in many instances, failed to report births. This is a matter of great importance both to the city and to its future citizens. In addition to the fact that vital statistics are thereby greatly impaired in accuracy, the amount of trouble and expense to which persons are liable in later life on account of this neglect, may be very considerable.

Tuberculin Test Defeated by Popular Vote.

The referendum vote on the tuberculin test ordinance recently held in Los Angeles was probably the first popular vote of its kind ever taken in this county. Although the ordinance was vigorously supported by the health authorities, it was opposed by the anti-vivisectionists, anti-vaccinationists, certain veterinary as dairy interests, and others. The result was a defeat for the ordinance by a majority of 5,152 votes. The ordinance was passed last November by the city council, and the vote was the result of activity by local dairymen in referring it to a popular election.

Streptococci from Milk and from the Human Throat.

Dr. E. C. Stowell and Mr. C. M. Hilliard in the April 1912 issue of the *American Journal of Diseases of Children*, report an investigation of a Comparison of the Streptococci from Milk and from the Human Throat. Their conclusions are as follows:

1. Streptococci from the human throat and from fresh milk very generally ferment one or more of the sugars, dextrose, lactose, maltose and saccharose, attacking them most readily in the order named. They do not generally ferment raffinose or mannite.

2. The streptococci of the sore throat and the normal throat show no cultural differentiation in relation to the carbohydrates used. Virulence tests might have separated the two groups.

3. The throat streptococci do not readily ferment at 20° C. any of the sugars used,

while the milk organisms attack the same sugars and to the same extent at this temperature as at 37° C. This is, perhaps, the most valuable differential feature between chained cocci from these two sources.

Garbage Disposal in Grand Rapids.

In the January-March bulletin of the Michigan State Board of Health, Dr. T. M. Koon contributes an interesting article on the garbage disposal of Grand Rapids. The city collects garbage twice a week, at a cost of $1.63 for each household per year. Under private collection the cost used to be $3.00 per year. The garbage, after collection, is delivered on tank cars, where the expense to the city ends. It is then shipped to a large piggery, three miles away.

From seven to nine thousand hogs are kept on a hundred acre farm. The garbage after arriving at the farm is cooked before feeding. Twelve hundred brood sows are kept and over ten thousand pigs are born every year.

Before the hogs are slaughtered, they are transferred to the "restaurants," and fed on cooked corn meal, to fatten them. The value of the hogs shipped to market is about $135,000 per year. All of the hogs are immunized against hog cholera while nursing, so that there is no danger of the herd being decimated. Twenty four hundred tons of fertilizer are produced annually, which has a value of about $36,000. The entire plant is maintained under the best sanitary conditions. Dr. Koon makes the following comment: "If this kind of a plant can be run at a good profit without creating a nuisance, why is it not better for a city to dispose of its garbage in this way, than to invest in one of the expensive plants which is quite apt to prove an elephant on the hands of the municipality." He also states that "there is no doubt but that as cities begin to understand the possibilities of this method of disposal, fewer of them will be investing in the expensive incineration and reduction plants."

In order to get rid of combustible wastes and dead animals, the city operates an Engle crematory. The expense of operating this for 1911, was $2,568.61.

Public Health in Michigan.

Public Health, the quarterly publication of the Michigan State Board of Health always contains matter of interest, not only to the citizens of that state but to all interested in health conservation. The January-March number contains the proceedings of the Michigan Health Officers' Convention which was held January 30-31 of the year. Dr. Victor C. Vaughan, the president of the Michigan State Board of Health contributes an important paper on the Michigan Method of Water Analysis.

Other important contributions were received from Miss Adele McKinnie, who is conducting an investigation of the extent, distribution and causes of feeble mindedness and epilepsy in Michigan, Dr. Guy L. Keifer on the Medical Milk Commission, Dr. T. M. Koon, on Garbage Disposal, Mr. John A. Hatch, Jr., on Hotel Sanitation, and Dr. A. S. Warthin contributes a preliminary report on some occupational diseases occurring in Michigan.

The many health officers in attendance were enthusiastic, and the greatest achievement in the convention was the organization of the Michigan Health Officers' Association. Much credit is due to Dr. R. L. Dixon, secretary of the State Board of Health, for the successful planning and consummation of the conference.

Tenth Annual Conference of State and Territorial Health Authorities with the Public Health and Marine-Hospital Service, Washington, June 1, 1912.

The tenth annual conference of the State and Territorial health authorities of the United States with the Public Health and Marine-Hospital Service, provided for by section 7 of an act of Congress approved July 1, 1902, was held in Washington, June 1, 1912.

The following resolutions were adopted by the conference:

Morbidity Reports.

In order to make available to the health authorities of the States, Territories, and insular possessions of the United States, for

their use and guidance in the protection of their respective communities, information regarding the prevalence and geographic distribution of certain diseases, and the occurrence of outbreaks and epidemics, be it resolved:

1. That the health authorities of the States, Territories, and insular possessions of the United States, including the District of Columbia, shall notify the Surgeon General of the Public Health and Marine-Hospital Service immediately by telegraph (collect) and letter upon the occurrence of a case or cases of cholera, yellow fever, typhus fever, plague, or Rocky Mountain spotted or tick fever, giving the number and location of cases, and that said authorities shall render monthly reports of the number of cases notified of smallpox, leprosy, scarlet fever, measles, diphtheria, typhoid fever, poliomyelitis, cerebrospinal meningitis, dysentery, Rocky Mountain spotted or tick fever, and other diseases notifiable in their respective jurisdictions; said monthly reports to be made on or before the 20th day of each month for the preceding calendar month, and to give the distribution of cases of smallpox, leprosy, poliomyelitis, cerebrospinal meningitis, Rocky Mountain spotted or tick fever, and typhoid fever, by counties, or by counties and cities, or by towns (townships), or by towns (townships) and cities; and that when in a State one or more cities are excepted by statute, charter, or otherwise from reporting the occurrence of the notifiable diseases to the State department of health, and the State report therefore is exclusive of cases occurring in such cities, the cities thus excluded shall be enumerated.

2. That upon the occurrence of an unusual outbreak, or in the event of a sudden increase in the number of cases of smallpox, scarlet fever, diphtheria, typhoid fever, poliomyelitis, cerebrospinal meningitis, or Rocky Mountain spotted or tick fever in any locality, the Surgeon General of the Public Health and Marine-Hospital Service shall be immediately notified by telegraph (collect) and letter of such unusual outbreak or sudden increase.

3. That in the primary notification of smallpox to local health authorities the date when the patient was last vaccinated and whether the disease is of the benign or virulent type shall be stated; that in all outbreaks of smallpox in which one or more deaths occur a report of such data as can be obtained regarding the origin of the first case or cases and the history of the outbreak shall be made to the Surgeon General after the subsidence of said outbreak; that all reports of cases of smallpox made by the State or other health authorities to the Surgeon General shall be divided into four classes:

(*a*) Those vaccinated within a period of seven years preceding the attack.

(*b*) Those whose last vaccination occurred more than seven years antedating the attack.

(*c*) Those who have never been successfully vaccinated.

(*d*) Those in which no definite history is to be obtained.

4. That in reporting the occurrence of cases of leprosy such data as it is possible to obtain regarding the patient's history shall be given.

5. That the Surgeon General shall, under the direction of the Secretary of the Treasury, pursuant to section 4 of an act approved February 15, 1893, entitled "An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," compile and publish the reports forwarded in compliance with the foregoing in the Public Health Reports for the information of the health authorities of the several States, Territories, and insular possessions, including the District of Columbia.

Phenol Coefficient of Disinfectants.

Resolved, That the United States Public Health and Marine-Hospital Service Hygienic Laboratory Standard Method for the determination of the phenol coefficient of disinfectants be recommended to the several State boards of health as the standard method; that all regulations regarding disinfectants be based upon this standard; and that the phenol coefficient be required to be stated on the label of each package containing such disinfectant.

Control of Typhoid Fever.

Resolved, That a committee be appointed to recommend a working plan for the control of typhoid fever and practical measures which can be generally enforced for the prevention of this disease.

Resolved, That all cases of typhoid fever should be placed in properly constructed and conducted hospitals, unless it be possible to isolate the patient at home with a trained nurse in charge.

Cerebrospinal Meningitis.

Resolved, That the Surgeon General appoint a committee to report further on the subject of cerebrospinal meningitis at the next meeting.

Public Health Reports, June 7, 1912.

Leprosy in the United States.

The Public Health and Marine Hospital Service has recently made a compilation of new cases of leprosy, reported in the United States in 1911. There were 40 such cases recorded and 146 known cases present on January 1, 1912. Besides these cases in the United States, 1,217 new cases were reported in Hawaii and the Insular Possessions, making a total of 3,478 cases present at the beginning of the year.

Public Health Reports, June 14, 1912.

First International Congress of Comparative Pathology.

The First International Congress on Comparative Pathology will be held at the Faculty of Medicine at Paris from October 17 to 23, 1912. The congress, the object of which is exclusively scientific, will bring together men of science interested in pathology in the widest acceptance of the world. Those promoting the congress desire interested scientists in the United States to participate. Communications should be addressed to the secretary general of the congress at Paris.

Professor Burt R. Rickards.

Professor Burt R. Rickards has severed his connection with the University of Illinois to accept the position of assistant director and bacteriologist in charge of the new biological department of Ely Lilly and Company of Indianapolis.

A local paper in expressing regret at Mr. Rickards' departure from the University makes the following comment:

"In the withdrawal of Prof. Rickards from the University of Illinois the little babies of Champaign and Urbana lose a real friend and it may be many years before the loss will be made up, even in a way.

"It was Prof. Rickards who brought to the attention of the people of these two cities the fact that they were being supplied with milk which was not fit for human consumption. He did not merely make the statement that the milk supply of these cities was terribly contaminated but he went before the people and proved to them that it was.

"Following these proofs by Prof. Rickards the city councils of both Champaign and Urbana lost no time in passing ordinances governing the sale of milk in these cities and as a result of these ordinances there is not the least doubt in the minds of those who have become informed, that many babies will be saved the present summer.

"The Gazette and all people who are familiar with the work Prof. Rickards has been doing will deeply regret that he should leave the University of Illinois."

An Important Step in the Study of Malaria.

"At the meeting of the American Society of Tropical Medicine in Atlantic City on June 3d, Dr. F. Creighton Wellman, dean of the Tulane School of Tropical Medicine, made the interesting announcement that Dr. C. C. Bass had succeeded in isolating the parasite of malaria, first growing it for seven weeks in artificial media in New Orleans, and subsequently, in the Canal Zone, being enabled to watch the entire cycle of development, the process of schizogony, etc. The studies of this society are attracting increased and deserved attention and are fraught with importance in their bearing on life in our Southern States as well as in our newly acquired tropical possessions."

New York Medical Times, June 15, 1912.

Community Health.

"When the rules and restrictions placed over us by a city health department seem strict, exacting and even martinetish, and we are on the verge of taking a kick at it, we should stop and contrast the health of our community with the health of cities fifty, one hundred, and two hundred years ago. The time in the past is not far ago when fever was an annual scourge and smallpox was once so common that the unpitted person in England was a rarity. Our cities then waged a losing battle with disease. They accepted an epidemic as nature. And several economists even went so far as to say that disease was a necessary evil, intended to check the growth of population and thereby keep up wages. We know better now. We know that science can fight the unseen, insidious foes of health. If a mild epidemic arises in a city, we are startled as by the abnormal; but with the shock comes a reliance that we are able to cope with the danger. This great change in community health has been wrought by rules and restrictions of the city health department.

"Health is chiefly a question of attention to small things. We usually keep well if we are not careless. But we are careless if we do not observe those numerous little health regulations, science, through our city health departments lays down for us. Surface cleanliness is too often a mask of gross uncleanliness. Surface cleanliness is not cleanliness but vanity. That cleanliness must be real the health department insists. So it sees that we pay attention to our drains; that we watch the disposal of our waste; that we keep our living quarters open to the sun and do not crowd them. It pokes into our lives, and finds the uncleanliness of which we have not dreamed. By so doing it maintains community health.

"Community health is far more important than personal health. Cities must be better watched and better attended than the individual; for the only protection of the individual is community health. Unfortunately, we do not always appreciate this. We concern ourselves only with our immediate personal health. When we are ill and suffer, we rush to the physician for medical attention and relief. But the best efforts of our physician, his greatest watchfulness, his utmost knowledge, cannot protect us from community uncleanliness. If the health department cannot keep its community clean, then all live in a danger zone.

"The protection a city health department accomplishes has been realized. In the worst graft ridden city, it is not often that the health department is the prey of the boss. The most arrant grafters, the most avaricious bosses, have in recent years kept their hands off health departments so far as efficiency was concerned. . . . To guard health, the health department must act quickly, and to act quickly there must be unhampered power. Better give hearty, sincere co-operation to a city health department in all its measures, for behind the rule that pinches is usually the scientific principle that shields community health from the old foe, the epidemic."

Los Angeles Municipal News, June 12, 1912.

Can't Play it Alone.

"A health department, to be efficient, should have a number of co-partners.

"First of all comes the public press, acknowledged not only as a disseminator of news, but chiefly as an educator and moulder of public opinion. The press of Buffalo is the peer of any in the world, and while there may be differences of opinion as to the manner of obtaining certain results, yet all strive to accomplish the greatest good.

"Among the other co-partners are the department of education, public works, police, poor, railroads, the numerous clubs and philanthropies, and above all, the great public—the final tribunal.

"Buffalo's health department is frank to acknowledge its indebtedness to all these."

Buffalo Sanitary Bulletin, Vol. V., No. 4.